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"Scire est nescire, nisi id me Scire alius sciret."

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MEDICAL DEFENCE.

The Presidential Address, delivered on 13th October, 1937, at the opening of the Sixty-fifth Session of the Bristol Medico-Chirurgical Society.

BY

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THE subject I have selected for my address is one which concerns us all, for with it may be closely bound up our future prosperity and happiness, our professional reputation, even our professional existence. I propose to draw on my experiences and give you some impressions gained from a good many years' service now, on the Council of the Medical Defence Union.

Most people know, no doubt, that that is not the only society which is concerned with such matters, for there is another, the London and Counties Medical Protection Society. If the Medical Defence Union can justly claim to be the older, the larger and the richer, no member of the other society need have the least fear that his affairs are not in safe hands, both from the point of view of skilled management and

absolute financial stability. I have no wish that what I have to say should be in any sense propaganda on behalf of my own society, but that it should be taken as typical of Medical Defence in general. My experiences could be, no doubt, exactly duplicated by anyone familiar with the inner working of the other society.

It is not without interest to look back and inquire how it comes about that there should be two societies with the same objects, and doing precisely the same kind of work. To understand this, we must go back to the year 1892, which was seven years after the foundation of the original society. In that year a member of the Council differed from his colleagues over the conduct of the society's affairs, he found himself in a minority of one, and he left the society to found a rival organization, the London and Counties Medical Protection Society. Since that time, several efforts have been made to bring about an amalgamation of the two organizations, but without result. Opinions probably differ as to whether amalgamation is desirable, or whether efficiency is not rather promoted by having two societies in healthy rivalry. The financial position of each is so very strong that it is doubtful if anything would be gained by uniting them into one.

I have called the two societies rivals, but I should hasten to add that they are friendly ones and work in the closest co-operation. When action is threatened or commenced against a member of the Profession who is in partnership, it is practically always brought against the firm, not against the individual, even if one person only was concerned in the matter complained of. It naturally happens quite often in such cases that one member of the firm belongs to one

society and another to the other. Such cases cause no difficulty at all, for they are dealt with by a standing joint committee composed of an equal number from each society. The Committee works according to set Rules of Procedure, and no serious difficulty has, so far as I am aware, ever arisen.

An inquiry as to how the necessity arose for some form of organized medical defence takes us back more than half a century, but although the original society was actually founded in the year 1885, the events which gave rise to it occurred two years earlier. In the year 1883, two practitioners of Dulwich—Doctors Bower and Keates—were sued for negligence and prosecuted for manslaughter in connection with their treatment of a child suffering from diphtheria. The child died, and it was alleged that it was owing to the instructions given to the father that he himself contracted the disease. Both charges failed, and at the end of the hearing the Court expressed the opinion that the case represented "persecution rather than prosecution." In spite of their victory, the defence cost the two doctors more than one thousand pounds. Widespread sympathy with them was expressed throughout the profession, and a meeting was called, presided over by Sir William Jenner, to see what could be done to help them. The result was that the amount required to pay for the defence was subscribed at once.

This case brought the question of medical defence very much to the fore, and many resolutions were sent in to headquarters by branches and divisions of the British Medical Association appealing for the provision by the Association of some form of co-

operative medical defence. Counsel's opinion was, however, that the funds of the Association could not be properly used in this way. After the reconstruction of the Association in 1903 the question was again raised, but it was again decided not to interfere with the work of the societies by competing with them. Most members will probably think that this decision was a wise one.

The actual prime movers in the matter were, curiously enough, not medical men at all, for it was a body of seven laymen who, on the 23rd October, 1885, registered the Medical Defence Union as a company limited by guarantee, under the Companies Act of 1862. Meetings were held in numerous provincial centres, and it was in Birmingham that most enthusiasm was shown; and it was from a meeting held there that the Union, as we know it, actually sprang. The first President was Lawson Tait, the famous gynæcologist. Later in the same year the infant Union was all but wrecked by the misappropriation of its funds by an official, but the delinquent was brought to justice and the Union weathered the storm. With the driving power still largely supplied from Birmingham, the Union began to develop on the lines of to-day. It first appeared in the rôle of Plaintiff in 1889, when it successfully sued the Great Western Railway Provident Society for the wrongful dismissal of one of its surgeons.

It will probably be thought that the time has now come for me to give up delving into the past and to deal with some practical problems of medical defence as it affects us to-day. While listening to the discussions of these problems month after month, three

things keep recurring to one's mind. Firstly, how any doctor engaged in any kind of practice can be so utterly foolish as to neglect to insure himself against charges of negligence, which is only one aspect, albeit the most important one, of the subject. A charge of so-called negligence may arise out of the blue at any moment. However frivolous and without foundation in fact, it needs much trouble, and possibly much money, to deal successfully with it. It is to be noted that many of the more frivolous claims are merely a dodge to attempt to evade payment of an account. Your Society does not claim to be in any sense a debt-collecting agency. If your patient merely refuses to pay his account, or takes no notice when you send it in, the County Court is the place for him. Only let him, however, make a complaint about your treatment as an excuse for refusing or neglecting to pay, and his challenge will be quickly taken up.

The other two points to which I referred are how foolishly some doctors can act, and how ungrateful, grasping and unscrupulous can be a minority of patients. Let me hasten to emphasize that it is only a very small minority who act in this way, for it is in only a comparatively few cases that anything occurs to disturb seriously the atmosphere of confidence and trust which should exist between doctor and patient.

As I have already mentioned, a great part of the work of the defence societies deals with charges of negligence, justified or otherwise, trivial or grave. It must be remembered, however, that this forms only a small fraction of their activities. Only a small proportion of the cases dealt with ever reaches the Courts or gets into the papers. Nevertheless, the amount of

trouble, anxiety and expense saved to their members in the aggregate is enormous.

To take the general practitioner first, as the most numerous and most important section of the profession, it may be interesting to set out some of the ways in which trouble can overtake him. He is not concerned as a rule in the big cases of malpraxis which get into the papers, but he can, and he does get into frequent difficulty in his work under various Acts of Parliament, for instance, the Public Health, Midwives, National Insurance and Lunacy Acts, in disputes with various Public Authorities, and in numerous other ways.

Hypodermic needles cause any amount of trouble. The needle breaks off and remains in the patient's tissues and very frequently trouble follows. So often does this happen that one society has issued a set of model rules, which includes the advice never to use a hypodermic needle a second time. This is, indeed, a counsel of perfection, and a more economical and almost equally reliable rule is never to insert the needle up to the hilt. It is always at the rusted joint where the needle is inserted into the mount that the break occurs. Enough should always be left projecting to enable it to be retrieved should a break occur. Intramuscular needles, in particular, should always be of ample length to allow this to be done.

The following is an interesting case bearing upon this point. A doctor was giving an intramuscular injection to a somewhat nervous patient when she made a sudden movement, and the needle broke off and disappeared. The doctor said nothing and allowed the patient to travel home by bus, a distance of two miles. A few days later he was again called in

because the patient complained of some tenderness at the site of injection. On this occasion he told the patient's husband what had occurred and arranged for the removal of the needle at the local hospital, which was successfully done.

A charge of negligence was made and an action for damages started. This was heard in the County Court by a judge, sitting without a jury. He awarded five guineas damages on the ground that the patient had not been informed of the mishap and had been permitted to travel home by bus. On the main issue—that is, of negligence in the performance of the injection—judgment was given for the defendant. This finding appears to mean that the breaking of a hypodermic needle and its loss in the tissues is not negligence, but that to fail to inform the patient of the fact is.

A word of warning must be given here on the question of X-rays. There are still far too many cases of suspected fracture—or unsuspected, for that matter—where an X-ray examination has been omitted and where it has been subsequently demonstrated that a fracture is present. It is highly dangerous to treat a contused hip without an X-ray; in a large proportion a fracture of the neck of the femur has occurred. If you have a case in which you think an X-ray is advisable and the patient refuses, on the ground of expense, or the effort required, or for any other reason, make a careful note in writing at the time in case there is trouble later. It is becoming almost *prima facie* evidence of negligence to have omitted an X-ray in a case where a fracture eventually turns out to be present.

The consulting physician seems to get off very lightly, for I can recollect scarcely a case in which one

was seriously involved. The Mental Treatment Act of 1930 must have removed a lot of anxiety from the minds of those whose duty it is to certify persons of unsound mind. This Act provides that no action can be brought against any person who has acted in pursuance of the Lunacy Acts unless the leave of the Court is first obtained, and such leave shall not be given unless the Court is satisfied that there are substantial grounds for the contention that the person against whom it is sought to bring the proceedings has acted in bad faith or without reasonable care.

I should perhaps mention here what is frequently a physician's operation, namely, the injection of alcohol into the Gasserian ganglion in the treatment of trigeminal neuralgia. The results of the alcohol spreading beyond the ganglion and affecting other cranial nerves are disastrous indeed, and there are many cases where it has done so. In my opinion this manœuvre should be left to those, be they physician or surgeon, who get sufficiently frequent opportunities of "keeping their hands in." The dangers of a general anæsthetic do not seem to be sufficiently recognized: for it will mask the area of anæsthesia following a preliminary injection of novocain into the ganglion which is such a valuable safeguard against a catastrophe of this nature.

Those engaged in the academic teaching of anatomy, physiology or pathology would seem to be reasonably safe, but if I were so engaged I think I should give myself the benefit of the doubt and insure. The clinical pathologist can certainly get into trouble, and so can the dermatologist, for radium and high-voltage X-rays are getting more and more important

as means of treatment, and it sometimes happens that mishaps occur.

In the ear, nose and throat department, cases occur in which a lot of harm has been done in the naso-pharynx when sloughing has followed a tonsil or adenoid operation. Other cases concern the facial paralyses after operations on the mastoid, while disastrous damage to the optic nerve has followed on an operation on the nasal sinuses.

Here perhaps is an appropriate place to mention the explosions which have occurred in operating theatres when a mixture of oxygen and ether has been used as the anæsthetic. This mixture is so highly explosive that a minute spark from a two-volt bulb worked from a dry battery has been sufficient to ignite it, and several lives have been lost in this way. A mixture of ether and air is much less highly explosive, and it does not seem to be appreciably less efficient.

And now I come to what is to some of us the most important aspect of the question, the general surgeon and his liability to charges of malpraxis or negligence. In this connection the swab looms large and I am sometimes tempted to wonder if it is a common thing for a surgeon to open the abdomen and *not* to leave a swab or an instrument inside. In comparison, of course, the number of such disasters is very small, but in the aggregate it is large.

Some of these swabs are not left in the abdomen at all, but somewhere else. In one case a tampon was left in the vagina after a curettage, where it was overlooked, to be discovered a week or so later by the nurse. Actually, of course, it had done no harm, but it led to a charge of negligence. Quite large swabs and packs

have been left in the axilla after breast operations, and some are left in the gastro-intestinal tract itself. In a recent case a surgeon did an extensive and successful partial gastrectomy and the patient left the Hospital. Shortly afterwards he began to vomit, and one day in an attack of vomiting he brought up a foreign body. This proved to be a gauze pack, which when wet and compressed was as large as an egg, but when dried, fluffed out and put on the stretch, it was a strip of gauze twelve feet long and six inches wide. Imagine an indignant counsel for the plaintiff holding this up at arm's length before the eyes of a sympathetic jury, and demanding compensation almost literally by the yard. Actually the patient had suffered only temporary inconvenience, and a small *ex gratia* payment disposed of his claim.

I must ask those who do not do abdominal operations to bear with me while I refer in greater detail to this swab question. It is often argued, and most people would think justly, that the surgeon forms only one of a team: that he cannot possibly be personally responsible for every detail of an operation, and that the counting of swabs and instruments must be the responsibility of others. This sounds reasonable, but unfortunately it has never been established as a principle of English law. To deal with this point I must refer to one or two decided cases, and from them it would appear that overseas surgeons are more fortunate than their colleagues at home in this respect.

The best known case is that of Van Wyk *v.* Lewis, decided in 1924 in the Supreme Court of South Africa, where the Court found that the surgeon was not responsible for a swab left in the abdomen at a

laparotomy. The Judge's words were: "The surgeon does not ensure that he will be responsible for the misfeasance of the nurse: to make him so would be to make his position intolerable."

In the case of Ingram *v.* Fitzgerald, heard last year in the New Zealand Court of Appeal, the facts were somewhat different but the principle was the same. It was not a swab case, but one in which a theatre nurse, intending to paint a patient's abdomen with tincture of iodine, used instead iodized phenol which had been used at an earlier stage of the same operation. The mistake was discovered at once and prompt steps were taken to rectify it. It appears that no very serious damage was done, but an action for damages followed nevertheless. The Court found that in the particular circumstances the surgeon was not liable for the negligence proved against the nurse, and judgment was given for the defendant.

The best-known case in this country is that of Crotch *v.* Miles, which was tried in 1930. Here a patient sued a surgeon for negligence, alleging that he had left a pair of artery forceps in her abdomen. Lord Hewart, the Lord Chief Justice, put it to the jury that they must consider whether the surgeon ought to have known or found out for himself if anything was missing, or whether he was entitled to rely on the theatre-sister. He also expressed the opinion that it was unreasonable to expect the surgeon to count anything in the course of the operation, but that after the wound was stitched up it was reasonable to expect him personally to satisfy himself that nothing is missing. In point of fact, this case decided nothing, for the plaintiff had had a previous laparotomy in France and the jury was not

satisfied when, in fact, the forceps were left in the abdomen. Judgment for the defendant followed.

The present position may be summed up in the words of the *British Medical Journal* as follows:— "The test must apparently always be, in the particular circumstances of the case, could the surgeon reasonably have been expected to supervise or check the actions of the assistant, and to intervene if a mistake was committed?" It is quite certain that in every case the defence would have to be prepared with evidence that a definite system is in force in the Hospital concerned for checking instruments and swabs, which in ordinary circumstances should suffice to prevent these accidents. Human fallibility will always be with us, and it is impossible to foresee a time when these misadventures are entirely things of the past.

There is one point which arises when the defence of such cases is under consideration, and that is the fact that to defend the surgeon it is almost inevitable in many cases that an attempt is made to transfer the blame to the shoulders of the nursing staff or some other subordinate, which appears unchivalrous. These cases, however, when they reach the Courts must be dealt with according to the Law, and not by any other consideration. Some will think that the modern highly-trained nurse ought to be able to stand on her own feet and shoulder every responsibility which her status puts upon her. Any damages awarded would rarely be against the nurse personally, but against the Hospital where she was employed. Many Hospitals are, and all should be, insured against accidents of this kind. It is time I left this subject now and passed on.

Up till the middle of last century the dependants of a person who had died as a result of the wrongful act of another had no right of action at all in respect of the death of the deceased. In the year 1846, however, the Fatal Accidents Act—better known as Lord Campbell's Act—appeared on the Statute Book. This Act created a limited right of action in that the dependants could claim in point of damages the actual monetary loss sustained by such a death, although they could not claim what might be called sentimental damages. For instance, a parent could only claim in respect of the death of a child if it could be proved that the parent had expectations from the child, either in contributions to the household expenses or otherwise. In any event, the amount that could be claimed was quite small, being limited to £250.

With this small exception, the old principle of British Law has held—*Actio personalis moritur cum persona*—which means that the right of personal action dies with the individual, whether plaintiff or defendant. To make a concrete case of it, the legal representatives of a deceased patient could not take into the Courts a grievance which they might think they had against the medical attendant of the deceased. Similarly, an aggrieved patient could not pursue a claim against the estate of his deceased medical attendant.

This position has been completely altered by the Law Reform Act of 1934, which extended the provisions of the earlier Act so as virtually to put the dependants in the shoes of the deceased so far as the right to claim damages was concerned. The aggrieved relatives of a deceased patient *can* now sue his medical

attendant for negligence: moreover, an aggrieved patient can now sue the legal representatives of his deceased medical attendant. Members may have seen reported in the papers a recent case in which this principle doubly applied, for the relatives of a deceased patient obtained heavy damages for negligence against the estate of his deceased medical attendant. This fundamental change in the legal position has been quickly recognized by the defence organizations. They are prepared to assume responsibility for defending the interests of the dependants of a deceased member in case trouble of this sort should arise. I need hardly say that it is essential that the deceased member should have been in benefit both at the time the incident occurred from which the charge arose, and also at the time of his death.

I now turn to a branch of the work which fortunately affects few of us. Nevertheless, to that few it is of vital importance. This is the handling of cases which come before the General Medical Council. In the average case of this sort it is essential that the interests of the doctor whose conduct is in question should be represented by a solicitor, and I cannot help thinking that the solicitors to the defence societies carry more weight than others, however eminent or experienced. At any rate, it cannot be denied that these same solicitors are very useful to the Council itself in undertaking the prosecution of those charged with carrying on unqualified practice. It must be remembered that these prosecutions are never undertaken by the Council itself, but are handed over to the defence societies.

It is of interest to see what happens to the

unfortunates who are hailed before the C.G.M. In one year, chosen at random, there were eleven members of one society who found themselves in the unfortunate position of being charged with various offences before the Council. Of these eleven, in three cases the written explanation was accepted and no further action was taken. In five more the defence was successful—in three because the charge was held not to be proved, and in two more the offence was held to be proved but erasure from the Register did not follow. The remaining three were struck off the Register.

I must not omit mention of the Coroner's Court, and the various ways in which help may be required there. To give an example, requests are often received for representation at an inquest by a doctor who fears that his conduct of the case may be called into question. Such cases have to be very carefully considered, for the mere fact, if known, that a doctor is legally represented at an inquest might suggest at once to some people that he must have a guilty conscience. If it is reasonably certain that the conduct of a doctor will be severely criticized, legal representation will be given as a matter of course. In other cases it is generally unwise, because if it appears desirable in the course of the proceedings, an appeal to the Coroner to adjourn the inquest is bound to be listened to. In other cases a solicitor can be present in case his services should be required, his presence and the purpose of it having been previously and privately notified to the Coroner.

We in Bristol are fortunate in that for many years the relationship between the City Coroner and the local profession has been of the happiest, as it must be if the Coroner's Court is to function efficiently. Other

districts, however, are not so fortunate, and trouble with the Coroner himself is not unknown. In some Coroner's Courts the proceedings are liable to be conducted in a highly irregular way, and the Coroner has a distorted idea of his powers. The following case illustrates the sort of thing that may happen. A Coroner requested the doctor concerned to make a post mortem before the inquest. In the course of the inquiry he said it was clear from the evidence that there had been no real need for a post mortem, for the doctor could quite well have certified the cause of death without one, and he eventually refused to pay the fee. It was only after considerable pressure that he climbed down and paid up. I might mention that in cases like this, where the Coroner is obviously exceeding his powers, an appeal to the Coroners' Society generally has a good effect.

Coroners are, of course, nearly always solicitors, and we sometimes have trouble with other members of that profession. A doctor is frequently asked to supply a written report on a patient who has been injured, for instance in a street accident. The request for the report contains some such phrase as " Your fee will be paid," or it merely asks for the amount of the fee to be stated. The plaintiff, often a person of no means, loses the case, and in due course you ask for your fee : you are told by the solicitor that he has no funds out of which to pay the fee, and you are referred to the plaintiff. Of course, you get nothing.

In any case of doubt you will be wise to decline to part with any information or report until you get either the fee in advance or the solicitor's personal guarantee to pay it : in that case, if he fails to pay,

he can be dealt with. The defence societies, together with the British Medical Association, have recently taken up this question with the Incorporated Law Society, and they received a very sympathetic hearing. There is no doubt that any solicitor who has given a personal guarantee to pay and fails to do so can be speedily brought to book.

Before I turn to some remarks about medical defence in general, there is just one more aspect of the defence societies' work which requires a few words, and that is the suppression of unqualified practice. As I have said, that is never undertaken by the General Medical Council, the societies themselves undertaking the prosecution of offenders. It has taken a long time and several prosecutions to establish the fact that it is illegal for anyone but a registered medical practitioner to describe himself, or herself, as a physician or surgeon, whether the word is preceded by a qualifying adjective or no. A plate describing the unqualified owner as a "manipulative surgeon" or an "osteopathic physician" is not allowed. It has happened more than once that one of these gentry has been prosecuted unsuccessfully, and it is amusing to note the effect on his colleagues. Plates which had been taken down under threat of prosecution go up again, and their owners, hitherto submissive, once more become defiant. The question is pretty well settled now, and even if a bench of magistrates does dismiss a case of this sort, it is certain that a Higher Court will override the decision. Possibly some member of this Society knows of a plate somewhere which bears the words "physician" or "surgeon" with a qualifying adjective. If he will be so kind as to furnish me with

particulars, I shall have much pleasure in setting the machinery in motion which will cause its disappearance.

I think I have dealt with most of the chief points which arise in this connection, and I will only add a few remarks in general on the obligations which lie on members of the profession who would feel themselves reasonably safe from serious risk. What must they do to feel safe? The principal thing, having joined a defence society, is to take every care to keep yourself in benefit—or, in plain language, avoid getting into arrears with your subscription. This is doubly important, for the rules provide that to be eligible for assistance you must be in benefit both when the incident occurred from which the claim arose, as well as when the claim was actually received. These two dates may be separated by a period of years. I should make it clear that your subscription is due on each first of January, but you are allowed a month's grace, so that you are continuously in benefit if you pay not later than 31st January. Delay your payment, on the other hand, only until 1st February, and you are out of benefit during the whole month of January, and you may be refused assistance over any claim which originated during that month. I emphasize the word *may*: until quite recently it would have been *must*.

It must always be remembered that these societies are Limited Companies, and their funds have to be administered strictly in accordance with the Articles of Association. The funds are provided by members for the benefit of members who are in benefit. They cannot be disbursed on compassionate grounds, nor to meet cases, however hard, which do not come within the rules. Until quite recently help must be

refused to those out of benefit, but the Articles of Association have been recently modified by the insertion of the words "except under special circumstances." One can imagine a special circumstance as being held to have arisen in the case of a man who had let his subscription lapse for a few weeks, or a month or two, and who had a claim made upon him during an out-of-benefit period. It would very likely be looked upon as a special circumstance if an examination of the records showed that he was in the habit of paying up promptly, and was not a regular defaulter, as so many unfortunately are.

If you want to feel quite safe, you should join a society as soon as you are qualified. It is cheaper for one thing, for an entrance fee is waived in the case of the newly qualified. If you are not a member during your period of hospital residence, your choice of posts is limited, for many hospitals wisely insist on their residents being protected. The ways in which hospital residents can get into trouble are many, but I will only mention one example. A large proportion of intravenous injections of various drugs are given by residents. This applies to some of the various drugs which are used for intravenous urography, which are gaining an unenviable notoriety for causing trouble. The serious ulceration which sometimes follows faulty technique is, of course, well known, but cases of thrombosis in the injected veins and of trouble with the median nerve are not so well known.

Another sound rule is not to be in too much of a hurry to resign your membership immediately on retirement from practice. Remember that an incident may come to light which occurred months or years

before your retirement. If the claim is only made after you have given up your membership, you are out of benefit, and in the cart. A special provision is made for those who have finally retired by giving them lifelong protection for a lump-sum payment. This varies with the number of years of active membership, but the maximum is three guineas.

In this connection I feel bound to mention just one more Act of Parliament, the Statute of Limitations. There is more than one such Statute, but the one which applies to alleged acts of negligence occurring in medical practice dates back to the year 1623. This Act lays it down that no claim for damages for a wrong done can be made unless it is made within a period of six years from the date of the injury. If you leave a pair of artery forceps in a patient's abdomen and it does not come to light until more than six years have elapsed, the Statute of Limitations is a perfectly good defence. It would undoubtedly save you from being cast in heavy damages, but it would not prevent a claim being made against you: even if it were only bluff—and many claims are—it would mean a lot of worry and expense to deal with it. The lesson to be learned from this is that you should maintain your membership for even longer than six years after your final retirement from practice. The plan I have mentioned above allows you to do this with a minimum of trouble and expense, and so to secure permanent peace of mind.

Every partner in a firm should be completely protected, for as I said above, claims for damages are nearly always made against a firm, not against the individual partner, even though one individual only

is concerned in the incident complained of. Even if he is protected himself, his society will naturally not stand the whole racket if action is taken against the firm, if one or more members of it are unprotected. Let me once more emphasize that there is no need for both, or all, to be members of the same society. If all are protected there will be no difficulty in defending the case.

I have laid special stress on this question of keeping in benefit, for it is so important, but there is another point to be considered which is little less so. It is to take great care to give nothing away, and to make no admissions if you do have a claim made against you. Do not discuss the matter verbally, much less put anything in writing. If you get a letter of complaint about anything of the sort, do not answer it yourself, but send it straight to your society for advice as to how it should be dealt with. The defence of many a case has been hopelessly compromised at the outset by unwise handling, and by only making application to the society when things become serious. Expert handling in the early stages is of vast importance, and it may make all the difference between quashing a threatened claim and its development into a serious affair. Never hesitate to apply to your society at the slightest suggestion of trouble. Remember that if you compromise the defence of a case in the way I have mentioned you may be refused help altogether later, or asked to share the expenses, which may be very large.

I should mention that the degree of culpability varies a good deal, from the mildest expression of regret—natural but unwise—that harm has come from some action of yours, to the ingenuous individual who

gives the whole case away in a few well-chosen admissions. He says how sorry he is that his treatment has been followed by such deplorable consequences, and how much he sympathizes with the patient. He adds that fortunately he is insured against such mishaps, and that generous compensation for the harm done is available and will be forthcoming. He forgets one thing: that the promised compensation is to be made, not out of his own pocket, but out of funds which are administered under strict rules, one of the most important of which he has broken. He is likely to find that his optimism is ill-timed and his generosity misplaced.

I have by no means exhausted my subject, but I think I have touched on the most important items of a subject in which I take a great interest. I need only add that if any member of this Society ever finds himself threatened with trouble of the kind I have been discussing, even if it is only to the extent of the vaguest of threats—and many serious cases start with vague threats—I shall be only too pleased to put at his disposal such knowledge of the subject as I have acquired.

SOME CLINICAL APPLICATIONS OF THE MALE AND FEMALE SEX HORMONES.*

BY

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The purpose of this communication is to give some idea of the work done during the past three and a half years, and at the same time to afford a general impression of some of the uses to which the male and female hormones can be applied.

This subject has developed very rapidly in the last seven years. Owing to advances in bio-chemistry, clinicians have active standardized preparations of both hormones readily available.

The Female Hormone.

There are two ovarian hormones, œstradiol and progesterone. Œstradiol benzoate is an ester of the most powerful of the œstrogens, which is identical with that of the follicular hormone in the ovaries. For clinical use it is available in an oily solution in two doses: 1 mgm. or 10,000 I.B.U.† and 5 mgm. or 50,000 I.B.U. In this form it is slowly absorbed and is of lasting action, having an even and continued effect over a period of about four days, thus obviating the need of daily intra-muscular injections.

* A paper read before the Bristol Medico-Chirurgical Society on Wednesday, February 9th, 1938.

† International Benzoate Unit.

The route of administration of this hormone is rather important. For a prolonged effect intramuscular injections are given of this oil solution of œstradiol benzoate. For a slight but rapid effect, œstrone is administered in tablet form by mouth at frequent intervals, as both assimilation and excretion are very rapid. As a local application which is of considerable help in some cases, it may be prescribed as a cream or vaginal suppository for women and for small children in the form of vaginal capsules.

Progesterone, the hormone of the corpus luteum, is only active following preliminary action of adequate œstradiol and as my experiences are confined almost entirely to the follicular hormone, I will mention progesterone only briefly.

Before one can readily employ this therapy, its physiological actions must be understood. The use of œstradiol benzoate depends on two factors: (1) A substitution or supplement of the normal follicular hormone, and (2) A stimulation to the anterior pituitary.

First I will try to explain the normal processes of the human sexual cycle.*

The gonadotrophic fraction of the secretion of the anterior pituitary or master gland stimulates maturation of the follicle and production of œstradiol from the granulosa and theca cells. Ovulation occurs about the fourteenth day and is followed by corpus luteum formation. This process takes place in cyclical rhythm about every twenty-eight days throughout sexual life. As a result of such stimulation, the two hormones of

* A film produced by Professor Loeser and kindly lent by Messrs. Schering, Limited, was projected to illustrate the normal process of menstruation.

the ovary are elaborated—œstradiol in the follicle and progesterone and œstradiol from the corpus luteum.

The continuous supply of these hormones in the blood stream has a specific action on the endometrium. During the first fourteen days following cessation of the previous uterine bleeding, a proliferation or follicular phase takes place in the resting glands in the basal layer of endometrium, which alone remains after menstruation. From this basal layer are built up long winding glands with cylindrical epithelium. This tissue increases its thickness altogether seven times and the ratio of gland tissue to stroma increases.

At about the fourteenth day, the follicle becomes mature and owing to increased internal pressure, it bursts and the ovum is extruded. Now organization takes place in the hæmorrhagic follicle and a corpus luteum is formed, and under the action of its progesterone, a new change is seen in the endometrium. The columnar cells of the glandular tissue take on a secretory function. Granules of glycogen appear in the cytoplasm and the nuclei are pushed towards the basal ends of the cells. Finally, at about the twenty-fourth day of the cycle, these cells pour their glycogen content into the lumina of the glands which are distended and dilated. The increased pressure in these glands causes them to become tortuous and to take on a typical cork-screw appearance. The glandular element compresses the cytogenic stroma and becomes more evident.

Parallel with this glandular change in the proliferation and secretory phases there is also marked change in the stroma cells, which rapidly enlarge, and this tissue becomes very congested and vascular. Towards

the twenty-fourth day of the cycle, these cells become œdematous and rather like decidua cells; leucocytic infiltration is found in the region of the vessels, and after death of the corpus luteum, intercellular hæmorrhages take place. Finally, on disintegration the whole of this rich congested endometrium is shed, being visible evidence of this cyclical function.

In summary, the follicle elaborates œstradiol which induces the proliferation phase in the endometrium and the corpus luteum elaborates progesterone which converts this proliferation phase into a secretory phase, suitable for nidation of a fertilized ovum.

Menstrual bleeding may take place from a luteal or secretory phase in the normal way, or again, it may occur from a proliferation or follicular phase only, when it is spoken of as "anovular bleeding." Œstradiol is produced by the follicle and also by the corpus luteum in addition to progesterone and its concentration does not drop until the last few days of the cycle. Bleeding in absence of ovulation occurs only following diminution of this concentration below the threshold value; which is that amount of œstradiol normally necessary to bring the endometrium to that stage of proliferation in fourteen days, which will be followed by uterine bleeding on withdrawal.

The modern opinion is that the luteal or secretory phase is constant and lasts fourteen days, whereas the follicular or proliferation phase is variable, depending on the rate of maturation of the follicle and the time of ovulation. Both maturation of the follicle and ovulation are necessary antecedents to the formation of the normal corpus luteum. Thus the luteal phase is indicative of the occurrence of previous ovulation.

Whenever therapy is given in an endeavour to re-establish normal menstrual rhythm during sexual life, it must imitate the proliferation phase as nearly as possible. Menstruation is a mere physical expression of this pituitary-ovarian rhythm, and therefore one's aim in using œstradiol benzoate is to restore this cycle, in the hope that by a process of stimulation and substitution this may be continued and the reflex established.

At puberty, follicular maturation begins and under the rhythmic action of œstradiol the girl becomes a woman. The breasts increase in size and the genitalia attain the adult form. The infantile uterus grows and the myometrium develops. From now on until the menopause, the follicular hormone controls the uterus.

In addition to the changes in the endometrium, the tone of the myometrium also is maintained by the balance of follicular and luteal hormones. Œstradiol sensitizes it to the action of pitocin, whereas progesterone de-sensitizes it.

During pregnancy the follicular hormone in the circulation is much increased. It is manufactured by the placenta and causes growth of the uterus to protect the fœtus, whereas progesterone de-sensitizes it and prevents contraction. At term, the activity of the œstrogen changes and sensitizes the myometrium to pitocin, thus setting up contractions.

A healthy condition of the vagina and vulva is also assured by œstradiol. It increases the vascularity of the deeper layers of the dermis while it causes a proliferation-cornification of the squamous epithelium. The vaginal smear test of Papanicolaou[13] has demonstrated a cyclical alteration in these cells parallel with the secretion of follicular hormone.

The secretion of glycogen in these cells is maintained also, so that when they break down lactic acid is formed under the action of Döderlein's bacilli, and a low p H. is found in the normal vagina which prevents growth of pathogenic organisms.

The stimulation of the pituitary by small doses of œstradiol has been mentioned already. As so often occurs with the endocrine glands, this hormone has a diphasic action : large doses inhibit the pituitary. Normally there is a delicate balance between the pituitary and ovary, so that as one increases in action the other is inhibited, and this is probably materially responsible for the cyclical rhythm.

On termination of ovarian activity and disappearance of œstradiol from the circulation the secondary sex organs atrophy and the menopause occurs. Immediately it is found that the output of the gonadotropic factor is increased owing to removal of ovarian inhibition, and in the menopause there is prolanuria. The upheaval which takes place in the endocrine system at this time is the cause of the distressing symptoms which are so common until readjustment occurs.

After this brief survey of the main facts about the female hormone, I will endeavour to explain some of the applications for which I have used it. This may no longer be the correct treatment when synthetic prolan A. and B. are available.

THERAPY.

1. *Premature Babies.* I have no personal experience in this field. Dr. Potter has treated a number of

babies at the Maternity Hospital and so has Dr. Phillips at Southmead. I believe it is the routine treatment at both hospitals and is said to diminish anxiety. So far, no deaths of premature babies have occurred since it was started at the Maternity Hospital, in Dr. Potter's series. It is given by mouth in the feeds.

2. *Vulvo-vaginitis in Small Children.* Opinions seem to differ on this use of œstradiol. As far back as 1933, Lewis[11], Brown[1], Miller[12], and others in America gave daily intra-muscular injections and claimed good results. The modern application, however, which avoids any general stimulation of premature puberty, consists of local application of gelatine-covered capsules inserted into the vagina. Œstrone tablets may be given by mouth as well. My results with six cases, four of which were definitely gonococcal, have been promising, and after a month smears and cultures were negative. Two such cases had been treated for four to five months previously with routine treatment and were still positive.

3. *Menstrual Irregularities.* Before treating any case of menstrual irregularity, a careful history should be obtained, and any organic disease excluded by a complete medical and gynæcological examination. Preferably, in cases which still have some menstruation, patients should have a diagnostic curettage just prior to, or on the first day of bleeding, to see whether ovulation takes place.

In all cases one must remember that the object is to restore the normal function and the proliferative phase must be built up by doses given on the first, fourth, eighth, eleventh and fifteenth days of the

cycle. In this way, according to the nature of the œstrin deficiency, either supplementary and stimulatory doses of 1 mgm. or substitution doses of 5 mgm. are given. It is hoped that by so doing, either ovulation may be stimulated and the normal secretory phase will follow, or the follicular phase will be built up to a sufficient level, so that the naturally-occurring luteal hormone may have its effect.

Oligomenorrhœa or infrequent menstruation, *Hypomenorrhœa* or scanty menstruation, and *Epimenorrhœa* or too frequent menstruation, are all treated on the same lines in cyclical rhythm. The dosage, of course, varies according to the severity or duration and nature of the individual disorder. Treatment is necessary probably for four to twelve months and dosage should be reduced only gradually, always injecting the largest dose on the fifteenth day of the cycle. The prognosis is best for cases of oligomenorrhœa as long as this is not associated with menorrhagia, when œstradiol therapy alone is useless. Cases of hypomenorrhœa have usually an increased loss during treatment, but this tends to relapse after.

Amenorrhœa needs slightly different treatment, as here there is no cycle at all. Menstruation in mild cases of secondary amenorrhœa, which are probably subliminal in type, can usually be started after five injections of 5 mgm. on the first, fourth, eighth, eleventh, and fifteenth days. After about seven days' rest, bleeding begins. As soon as bleeding has finished, cyclical rhythm is continued by injections in the proliferative phase as before.

Cases of longer standing with uterine hypoplasia are best treated with bi-weekly injections for one to

two months to develop the whole uterus. Bleeding will probably start on ceasing injections. Immediately this has finished, cyclical dosage is continued for six to twelve months. Failure to induce the onset of bleeding after such treatment should make one suspect pregnancy and an Ascheim-Zondek test should be carried out before diagnostic curettage is attempted. Often a brief course of treatment is sufficient to aid fertilization and nidation. After gradual reduction of dosage by injection, oral therapy can be substituted for a few more months. By this means, as I have proved on several occasions, true menstruation from a secretory-phase endometrium following ovulation can be re-established, using œstradiol therapy alone. Spontaneous menstruation after cessation of treatment is probably only to be expected in from 25 to 40 per cent. of cases and time will possibly show a tendency to relapse. There may be a large pituitary, hypothalamic or even cerebral factor responsible in these cases.

Primary Amenorrhœa. I have treated two cases of this rare condition. The first, a girl of 20 years, failed to menstruate owing to my dosage being too small. The second was a girl of 25 years[8] who had never menstruated. I built up her uterus for four months with a total dose of 430 mgm. and after a rest of six days gave five daily injections of 5 mgm. progesterone, and two days later she saw her first period. Since then during the last eight months, she has had seven periods with œstradiol benzoate only.

Primary Sterility in the Female. I have treated only about six cases, all of which were associated with some menstrual irregularity and genital hypoplasia.

All were treated with œstradiol benzoate on similar lines to that already stated: two have successfully produced babies, and one is pregnant.

Action on the Myometrium. No amount of œstradiol benzoate will affect an established pregnancy, as its action is antagonized by progesterone; but for intra-uterine death, where there is not sufficient œstrin in circulation to sensitize the myometrium to pitocin, 1 to 5 mgm. of œstradiol benzoate should be given every eight hours up to eight days and then medical induction is successful in 80 per cent. of cases. According to Jeffcoate[10] some help may be obtained in primary uterine inertia by 2 mgm. hourly for ten injections.

True Dysmenorrhœa, or spasm of the muscle, occurs once bleeding starts and is now thought to be due to lack of sufficient progesterone. I have found that œstradiol benzoate, given in cyclical rhythm for four to twelve months, is sufficient to remedy this. The course may have to be repeated. Nearly all my cases were associated with uterine hypoplasia and some form of irregular or scanty bleeding. Invariably if the loss were increased the pain diminished. Probably the extra dose of œstrin enabled full luteinization to occur, thus controlling the spasm of the muscle. Results are lasting in a large number of cases.

Menorrhalgia, or congestive or extrinsic pain, is also benefited. The type of case with menorrhagia, however, is not relieved by this therapy. The neurotic type also is disappointing.

Action on the Breast. Practically all cases treated for any length of time show some mammary development or stimulation, from slight tenderness or soreness around the nipple to a considerable enlargement.

This may be a useful application for those who desire a fuller bust. During lactation the supply of milk can be dried up, as œstradiol and œstrone concentrate the protein in the milk, as was shown experimentally by Folley[4] on the cow. Dr. Phillips, I believe, is finding œstrone by mouth useful for this purpose. So far, I have treated only six cases. Dosage is usually 2,000 I.B.U. two-hourly by mouth for about four to eight days, with only fluid restriction. Occasionally injections of 1 to 5 mgm. twice daily may be necessary at first, if there is a lot of milk.

The Control of Menstruation. By the simple measure of prolonging the proliferation phase and maintaining a super-threshold dose of œstradiol benzoate until the expected date of onset has passed, menstruation may be postponed[6] for a few days or as long as desired. The simplest way of doing this is by giving 5 mgm. every three days, starting about the tenth day of the cycle. Ovulation is thus inhibited. Larger and more frequent doses are required if the patient is not seen till after the thirteenth day.

Early induction of bleeding can also be obtained by hastening an early proliferation phase and then converting it into a definite secretory phase by progesterone: bleeding will start prematurely on withdrawal. It is wise not to repeat this application too often and it should only be used to avoid such occasions as a wedding day or tennis championship.

The Menopause. Most of the symptoms of the climacteric, including hot flushes and even endocrine arthritis, have been controlled by the smaller or moderate doses given by mouth or by injection. Some indication of the basic level required is given by

the vaginal smear test of Papanicolaou.[13] The menopause is one of the best known and most successful indications for œstrin therapy.

Vulvo-vaginitis, including idiopathic pruritus vulvæ, kraurosis, leukoplakia and atrophic senile vaginitis make up forty cases in my series.[5] By no means are they all post-menopausal and some of the worst have been menstruating regularly. Brian Swift[15] discovered their association with achlorhydria and maintains that this is responsible for a vitamin A deficiency. In the absence of this protective factor, infection or trauma soon set up chronic irritation in the delicate vulvo-vaginal epithelium, especially after the menopause, when this epithelium is thin and atrophic. In my series, 37 per cent. had total and 37 per cent. partial achlorhydria. The treatment then consists of a high vitamin diet, hydrochloric acid by mouth with halibut or cod liver oil. Œstradiol benzoate is given in doses varying from 5 to 25 mgm., bi-weekly at first. Relief is obtained in one to two months, when dosage can be cautiously reduced. A recent advance is the local application of œstradiol in vaginal suppositories or in a cream, thus reducing the necessity for the larger doses.

As this is entirely substitution therapy, treatment is likely to be prolonged, but with local treatment small weekly injections are often adequate. After large doses, even in old women of 80 years, withdrawal bleeding is usual and its probable occurrence should be explained.

Inhibition of Pituitary Function. A case of acromegaly treated with 1,215 mgm. for seven months has only shown how apparently innocuous large

doses are, but her condition is stationary. Pituitary basophilism (Cushing's Disease) has been treated also in America by Dunn.[3] I have treated a woman of 70 years with 1,600 mgm. in eight months. She had a fungating scirrhus carcinoma of the breast which was painful and there was a large ulcer with a foul-smelling discharge. The only effect that I found was that the ulcer attempted to heal and the discharge to lessen. Pain was reduced and the smell disappeared. This should allay any fears of cancer stimulation by this therapy. Œstradiol benzoate has been tried with varying success in some other conditions.

THE MALE HORMONE.

This is available at present as testosterone propionate. This ester dissolved in oily solution is found to be most potent and the effect lasts about seven to fourteen days. The uses of the male hormone are indefinite at present, partly because its effect is not completely known and partly because the human dosage has not been fully decided. It is said to stimulate the growth and activity of the secondary sex organs such as the penis, prostate, Cowper's glands, vesiculæ seminales, etc., and, in conjunction with the supra-renal cortex, is responsible probably for the male psyche.

Recently I have had the opportunity of investigating its effect on a post-puberal eunuch of 38 years, who was wounded in the War.[7] His penis was unharmed but the lacerated remains of his testicles were removed by Mr. Stuart Stock in 1918. This patient married in 1923, and was impotent until 1937, when I was able to restore his sexual vigour. In a

week, after daily injection of 20 mgm. of testosterone propionate, he developed painful priapism. Normal coitus was possible now for the first time and full erotic sensation and orgasm were obtained, but without any ejaculation. This normal condition was maintained by a weekly dose of 40 mgm. Coitus took place with satisfaction to both parties and libido was excessive. During twelve weeks of treatment his weight increased by 16 lb. and his collars became too small, but in the nine weeks after treatment ceased he lost 10 lb. As this patient co-operates so well, I am now continuing therapy with a view to elucidating other points of interest. Hamilton,[9] in America, has published recently a case of hypo-gonadism in a medical student who re-acted similarly to testosterone propionate.

From these human experiments some idea of the human dosage can be obtained; although in normal man another factor has to be considered, namely the antagonistic effect of female hormone. Œstrin occurs in the male gonad in large quantities and is excreted in male urine. The richest source of œstrin yet discovered is the testicle of the stallion, which Zondek[16] has estimated as containing 500 times more œstrin than the ovary of a sexually mature mare. Œstrin is derived probably from testosterone by a progressive degeneration of this sterol.

The bi-sexual output of hormones from the testicles has given rise to the theory of prostatic hypertrophy which is associated with the male climacteric. Zuckerman's[21] view after considerable research with dogs and monkeys is that there is an imbalance between these two hormones in aged animals and

œstrin, which normally is inhibited by testosterone, now becomes dominant in action. The prostate of a newly-born baby is said to become smaller after birth owing to the removal of the influence of the maternal œstrin.

It has been shown that the prostate of dogs when stimulated by œstrin administration gives an identical microscopic picture to that of normal adenomatous hypertrophy; and Zuckerman[17] thinks that the uterus masculinus in man under the action of unopposed œstrin in later life undergoes cystic hyperplasia such as that which takes place in the female endometrium. The hypertrophied middle lobe is thought by some to compress the true prostatic tissue, which after surgical removal of the adenoma is left behind as a capsule in which lie the ejaculatory ducts. Further, Zuckerman[18] has shown that testosterone propionate will inhibit the effects of œstrone on the prostate of the immature Rhesus monkey, if given in the ratio of 7 to 1.

As soon as this hormone was available in adequate dosage and sufficient quantity for clinical trial, I started to treat a series of cases with prostatic symptoms—senility, impotence, etc. The enthusiasm which the results of animal research led one to adopt has been damped considerably after using this therapy for the past year. My first difficulty was to obtain suitable cases. This may sound incredible until it is realized that in hospital practice few patients are sent in unless they are on the threshold of retention and in poor general condition. When perhaps they are suitable for a preliminary attempt at hormone therapy, the keen surgeon immediately seizes them and shells out the offending gland.

The next difficulty was to find patients in my own practice with symptoms still in an early stage. Every man above 50 years who came up complaining of a toothache or other minor ailment was questioned in detail about his uro-genital function and submitted to a rectal examination. By this means I have collected a small series of eighteen cases during a period of twelve months.

These may be grouped into (*a*) Advanced prostatic hypertrophy, and (*b*) Early cases with only moderate enlargement.

For the late cases where there is much adenomatous hypertrophy and considerable fibrosis, one cannot hope to achieve very much in reduction of the size of the gland, but the improvement which occurs in urinary symptoms is remarkable. There is some reduction in the nocturnal frequency after a week or so. In some, the stream is improved and urgency is lessened and they can hold their water better. There is not such a marked change in diurnal frequency. This effect is thought to be due to the increased tone of the bladder wall.

My first cases were given weekly injections of 40 mgm. (a dose recommended by Zuckerman and Greene[20]), but very soon I found that improvement was more rapid if injections were given daily in doses of 40 to 50 mgm. In one case of a man of 70 years the prostate was as large as a small tangerine and this patient got out of bed three or four times a night. With daily injections of high dosage this frequency was reduced steadily and he seemed to be progressing favourably until he had an acute attack of diarrhœa. The extra congestion was just sufficient to complete the

obstruction and he developed retention. Mr. Jackman kindly carried out a two-stage prostatectomy and he shelled out a large prostate weighing 85 grams. Section of this revealed no change attributable to the male hormone, but this could scarcely be expected after only eighteen days' treatment.

Male hormone therapy on experimental grounds was promising, but the clinical results have been only partially successful. However, there is a definite improvement physically in most patients treated, erections are often more ready and powerful, even in aged bachelors, and they describe a feeling of well-being. Nocturnal frequency is reduced in nearly all cases and in some to nothing. The stream improves and there is less urgency and delay. So far, I have been able to detect diminution in size of only one prostate which has had a year's treatment.

As regards other features of clinical improvement, the passage of catheters for measuring the volume of residual urine before and after treatment is not ideal and is difficult in general practice.

I think treatment with testosterone propionate should be maintained for a year or two, giving about 40 mgms. every fortnight. A small dose of œstradiol benzoate, 0.05 mgm., is given now with each dose of testosterone propionate, as this was found by Steinach and Kun[14] to increase its action. The latest suggestion by Cramer and Horning[2] for the treatment of prostatic enlargement consists of giving the pituitary thyrotropic hormone, which is antagonistic to œstradiol, and I hope to start clinical trials shortly in five cases.

Results up to the present suggest that if treatment is given in adequate dosage for a long period, early

cases may well escape a future retention and prostatectomy, but it must be remembered that surgical intervention is the only treatment of prostatic obstruction. Vas ligation or radiation of the testicle by X-rays in conjunction with such endocrine treatment may possibly become the future technique. At least five years must elapse before a definite opinion may be formed of the final value of this therapy.

Testosterone propionate is useful in certain cases of impotence and sexual asthenia and has a tonic effect on the male similar to that of œstradiol benzoate on the female. It is useful for early senility and previously weak, semi-flaccid erections are strengthened and libido returns. Mental activity and bodily well-being is increased.

ACTION ON THE FEMALE.

In the normal mature female Rhesus monkey testosterone propionate has been shown experimentally by Zuckerman[19] to inhibit ovulation, follicular growth and luteinization. This may be developed into a method for securing temporary sterility in the human female.

In some of my cases, if dosage were continued throughout a cycle, the endometrium was shown by curettage to remain in the resting stage. This action suggests a method of treatment for menorrhagia and other benign uterine hæmorrhage. However, I have found its action to be erratic, although this may be due to incomplete diagnosis or incorrect dosage. Male hormone is very useful in some cases, and I quote the following example. A patient aged 45 years with severe menorrhagia of the early menopause had been

treated with drugs and curettage, but bleeding continued and was due to metropathia hæmorrhagica. Her condition was so bad and she was so anæmic that hysterectomy was proposed. Meanwhile testosterone propionate was given twice weekly following cessation of one copious bleeding. Forty mgm. were injected on the fifth, ninth, twelfth, seventeenth and twentieth days after this. She was curetted on the twenty-fifth day and the endometrium was in the resting stage: scanty bleeding followed three days later. Immediately five more injections were given every four days and she was curetted on the twentieth day, when the endometrium once more was found to be in the resting stage. Seven days later I failed to remove any endometrium with the biopsy curette. No more bleeding was seen for twenty-one weeks, when this was normal.

Further trials for this condition are being made. Experiences with such animal and human therapy show that there is no ill effect, except perhaps slight enlargement of the clitoris.

My thanks are due to Mr. Shepherd, Dr. Lily Baker, and Dr. Potter for their help and co-operation and for allowing me to treat their cases in the Gynæcological Out-patient Department, and to Dr. Fraser for the sections and pathological reports: also to Professor Davie for facilities to obtain slides and photomicrographs. Samples of Progynon and Testoviron have been generously supplied by Messrs. Schering, Limited.

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THORACIC SURGERY.*

BY

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THE scope of modern thoracic surgery is so great that I must limit myself to a brief description of the principles underlying the treatment of acute and chronic empyema, pulmonary tuberculosis, bronchiectasis and lung abscess, and of some intra-thoracic tumours and cysts. The scope of thoracic surgery depends largely on the general practitioner, the general physician, and the tuberculosis officers; with regard to the last group, it must not be thought that their field includes only tuberculosis. Indeed, most of the non-tuberculous patients about whom I shall talk were referred to me by officers of the Welsh National Memorial Association. It is of increasing importance that the physician should be surgically-minded, just as the thoracic surgeon must have a sound knowledge of the pathology and physical signs of chest disease, and be able to interpret accurately the radiograms: if he is merely a technical expert dealing with the mechanical problems of the chest his patients will be in constant jeopardy.

*A Paper read before the Bristol Medico-Chirurgical Society on Wednesday, 12th January, 1938.

In addition to the wise selection of patients by his colleagues and himself the thoracic surgeon is dependent largely on the goodwill of hospital and tuberculosis authorities. This slide shows the radiograph of a patient with a chronic empyema of ten years' duration extending almost from the dome of the pleura to the diaphragm (Fig. 8). Such tragic patients are chronic in every sense of the word: they need prolonged drainage, perhaps for six months, and this often has to be followed by collapse operations. This girl had to undergo a very complete thoracoplasty to cure her. Her stay in hospital was nine months. If hospital authorities are to encourage thoracic surgery they must view such problems with full sympathy.

With regard to the tuberculous patient requiring surgical treatment, the difficulties are great in many areas. South Wales is particularly fortunate in this respect, for the Memorial have in Sully Hospital a completely modern chest hospital of three hundred beds, and it is fully equipped to deal with any major thoracic operation. Here the patients can be treated along sanatorium lines before being operated upon, and this is infinitely preferable to the practice in many areas of sending patients from the sanatorium to a general hospital for their operation, for these subjects become peculiarly sensitive to their surroundings, and psychologically are extraordinarily dependent upon the personalities of their medical and nursing attendants. The undoubted value of bed-rest and the sanatorium régime is universally proved: there is unfortunately a tendency to regard the provision of such facilities as sufficient for the care of the

consumptive, and in many districts the advantages of supplementing this type of treatment by suitable surgery are not realized.

ACUTE EMPYEMA.

This condition should not be treated as an acute surgical emergency: nothing can be more disturbing to an ill patient than needling and drainage of the pleural cavity immediately on arrival in hospital. The three main problems are diagnosis, when and where to drain, and by what method (*i.e.* closed or open drainage), and when to remove the drainage tube.

Diagnosis.—I need not detain you with a description of the physical signs. It is well to remember, however, that there has been a gradual decrease in incidence of typical lobar pneumonia with its classical crisis: instead, we see a more diffuse type of lobular pneumonia in which the onset of purulent effusion is more insidious and more liable to escape detection. No longer is the first sign of an empyema made by observing on the temperature chart a gradual return of pyrexia after the dramatic crisis. Broncho-pneumonia almost from the start may be complicated by an effusion (syn- or para-pneumonic empyema). In influenzal epidemics patients may be up and about their daily duties with the chest full of fluid. It is foolish to refuse help from the radiologist, however definite the physical signs: I have found the use of X-rays to be of inestimable value both in diagnosing apical, interlobar and mediastinal empyema and in enabling the optimum site for drainage to be estimated.

When to drain an empyema.—The addition of an open pneumothorax after rib resection may prove fatal to a patient suffering from pneumonia and effusion, since vital capacity may be reduced to a dangerously low level because of mediastinal flutter. When an empyema accompanies pneumonia the effusion is often due to the streptococcus, and is thin and grey (pyothorax rather than a localized pleural abscess). In such types the mediastinum is not rigid or adherent. Drainage by rib resection and pleurotomy should only be used when there is frank pus present; such a condition is present in classical pneumococcal empyema (meta-pneumonic empyema) or when a thin streptococcal effusion becomes thicker after repeated aspiration.

Aspiration of purulent effusions.—To relieve respiratory embarrassment and to remove toxic fluid is an obvious duty even if rib resection is contra-indicated. It is important that the aspiration should be done without allowing air to pass into the chest and to cause further pulmonary collapse. A Potain's or Dieulafoy's aspirator should be used. If these are not available the following method is simple and safe. To a 20 c.c. Record syringe a piece of rubber tubing is attached and connected with a large bore exploring needle (Fig. 1). When the syringe is full of pus an artery forceps is placed on the rubber tube: the syringe is removed and emptied. The artery clip is retained in position until the syringe has been re-attached to the tubing; the manœuvre is repeated as often as necessary.

In nervous or young patients the repeated pricks in the skin become irksome and unbearable: this

suffering can be avoided by making a small incision under local anæsthesia over the intercostal space and packing the wound open with flavine gauze: this is removed each time aspiration is done. (Tudor Edwards.) It is remarkable that by this method the parietal pleura becomes insensitive and injections of novocain before each aspiration are unnecessary.

Intercostal drainage.—Occasionally this is necessary before rib resection and indeed in a few instances it may replace it. In ill patients the tube is inserted in the ward and I have found the following method simple and effective. A Hamilton Bailey suprapubic trocar, a Malecot's catheter with reinforced tip, and a large bottle with a rubber bung with two openings are required: the bottle contains a little antiseptic fluid into which a long glass tube runs: a smaller glass tube occupies the other hole in the cork. The whole apparatus is assembled as shown in Fig. 4. Under local anæsthesia a small incision is made between the two ribs and the trocar armed with the catheter is inserted through anæsthetized pleura: the trocar is withdrawn and the catheter is left fitting snugly in the chest: air-tight drainage is thereby established.

Drainage by rib resection.—When the indications are present this should not be delayed, as early evacuation of the pus encourages lung expansion, which is the essential factor in obliterating the empyema cavity. There is little doubt that for most empyemata closed drainage into a water-sealed bottle by a tube of the Tudor Edwards type (Figs. 2 and 5) is preferable to open drainage by a tube into dressings, since it is cleaner, makes frequent dressings unnecessary, and especially because it re-establishes a negative pressure

in the pleural cavity and this encourages lung expansion. Irrigation by means of the small side tube is also possible from the start, and this clears away any fibrin and thick pus. In routine cases irrigation with eusol solution along the small tube is done from the first day.

The site of drainage is important: usually this should be just above the base of the empyema and in the posterior axillary line: if too low the tube becomes blocked by the diaphragm (which usually comes up a little) and if too far back (a common mistake) the tube becomes blocked by the patient lying against it. Apical, interlobar and mediastinal empyemata are drained at appropriate sites (Fig. 6). In the after-treatment respiratory exercises are practised under the control of a masseuse to encourage active respiratory expansion of the lung. Blowing exercises (so often prescribed) are of little value, as the movement to encourage is inspiratory rather than expiratory.

When to remove the tube.—The commonest cause of chronic empyema is too early removal of the drainage tube. Frequently the closed method is abandoned after about a fortnight and an open tube used in its place. This must not be dispensed with until the surgeon is sure there is no longer a cavity present. To remove the tube just because pus has ceased to drain is incorrect. Although there are several methods of deciding when the lung has completely expanded, radiography after the injection of lipiodol into the cavity is by far the most reliable, as this gives absolute evidence of the presence or absence of an empyema cavity.

PLATE I.

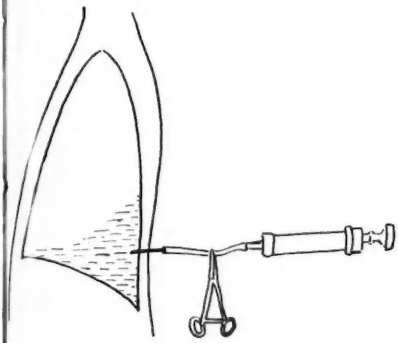

FIG. 1.

Method of aspirating a purulent effusion when a Potain's or Dieulafoy's apparatus is not available.

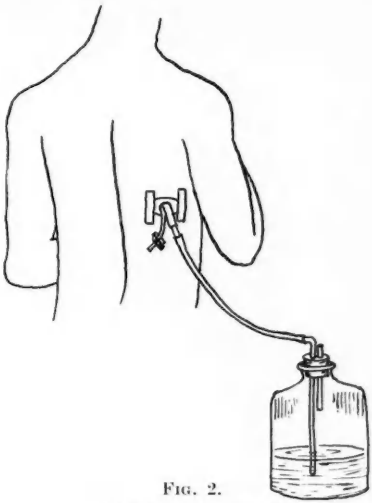

FIG. 2.

Tube fixed in position.

The tube can be fitted snugly against the skin of the chest by the use of elastic adhesive strap passed over the outer flange of the tube.

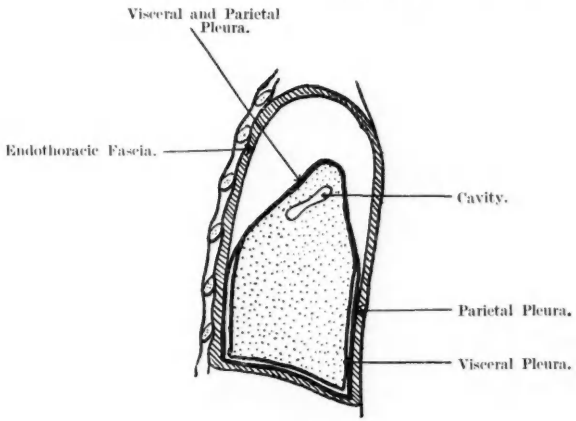

FIG. 3.

Diagrammatic representation of extra-pleural artificial pneumothorax employed for treatment of a cavity.

PLATE II.

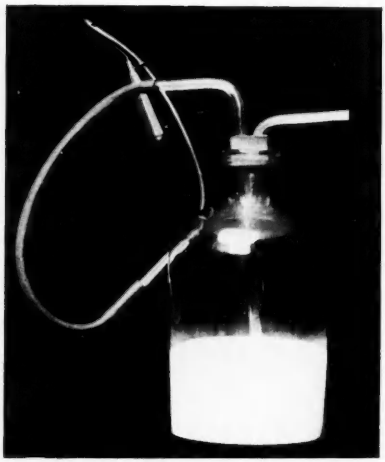

FIG. 4.

Apparatus assembled for intercostal drainage.

The catheter and trocar are made by the Genito-Urinary Manufacturing Co., Devonshire Place, London.

FIG. 5.

Tudor Edwards's type of drainage tube.

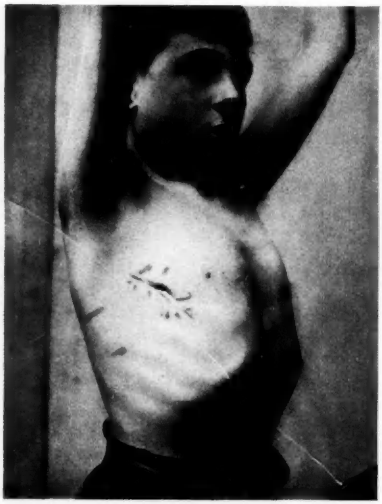

FIG. 6.

Site at which an apical empyema was drained.

FIG. 7.

A patient with an empyema sinus that had been present for 10 years: the site of drainage was too far forward.

CHRONIC EMPYEMA.

Three common types may be mentioned: patients who have never been diagnosed and drained (Fig. 9), those who have been inadequately drained because the tube has been placed in a faulty position (Fig. 7), or more commonly has been removed before the cavity has become obliterated, and those due to tuberculous disease. A bronchial fistula and a foreign body such as a drainage tube that has escaped unnoticed into the cavity are also causes, while in the last year I have seen three patients suffering from actinomycosis with persistent empyema fistulæ. The history of these patients is often typical, a common cold being followed by a return of discharge through a partially healed wound or by the sudden appearance of foul sputum when there is a bronchial fistula present.

The investigation of chronic empyema.—The pus must always be carefully examined for the tubercle bacillus and lipiodol should be run into the sinus and the chest X-rayed. Figs. 10 and 11 are radiograms of a chronic empyema before and after lipiodol injections. Sometimes the plain X-ray alone is sufficient, as in Fig. 8, which represents the chest of a child of twelve who for eight years had suffered from an empyema which had discharged either as the result of spontaneous breaking down of the scar or as the result of operation. The picture is that seen after prolonged drainage and decortication of the lung. The lung would not come out and a ten-rib thoracoplasty was required to close the enormous cavity.

Treatment of chronic empyema.—This is a long, tedious matter, and the patient may require to be in

hospital for many months. The first requisite is adequate redrainage by the closed method, preferably associated with suction drainage: in many patients it is surprising how well the lung will expand after years of collapse, especially when deep breathing exercises are employed under the eye of a competent masseuse. If the lung will not expand after several months' treatment, then further measures such as thoracoplasty, often combined with the turning in of a large hinged flap containing parietal pleura and muscle (Roberts's operation), are necessary. These operations are formidable, and very large portions of ribs back to the transverse processes of the vertebræ must be excised. If the cavity extends as far as the third rib posteriorly the first rib must be excised. With smaller cavities a local thoracoplasty suffices.

PULMONARY TUBERCULOSIS.

Bed-rest and a regulated régime are the sheet-anchors of treatment. As an adjuvant to general sanatorium treatment, surgery is often a life-saving help to patients with productive tuberculous disease who are showing a tendency by their own efforts at fibrosis to heal their disease. Although surgical measures, such as phrenicectomy and multiple intercostal neurectomy, are sometimes of help in certain exudative lesions, I shall confine my remarks mainly to the treatment of fibro-cavernous disease.

It is quite certain that some cavities will and do heal under bed-rest treatment alone. If after some months, however, the cavity is stationary or enlarging, and the lesion is unilateral or with moderate disease on the other side that can be controlled and the patient

is of suitable age (fifteen—forty-five) surgical help is often required. Although many patients live in fair comfort with open cavities, these must be regarded as an ever-present danger, on account of the risk of spreading to other parts, secondary infection and hæmoptysis. The surgery of pulmonary tuberculosis aims at producing relaxation of the diseased lung: there is no doubt that usually the best way to achieve this is by an effective artificial pneumothorax which collapses the lung and yet leaves a negative pressure in the pleural cavity.

Surgical assistance to a pneumothorax.—If the pneumothorax does not control the cavity or lesion by providing a selective collapse it is often quite useless. Such collapses may be prevented by adhesions which can be divided by means of the thoracoscope under local anæsthesia. The operation may be a difficult one and requires great patience and judgment. Complications, of which the commonest is an effusion, are now quite uncommon with a wise selection of cases. Where the adhesions are too dense for division by intrapleural pneumolysis, a phrenic nerve interruption may help especially for so-called "hanging" cavities held up towards the apex by adhesions and with the partly collapsed lung bound down to the diaphragm below. I believe the operation is not used sufficiently often in this type of patient. Where a pneumothorax is desirable but cannot be obtained because of dense adhesions, the operation of extra-pleural artificial pneumothorax may be employed with great advantage.

Phrenic nerve operations.—The nerve may be avulsed (Felix operation), the tearing out of the nerve being done to ensure division of the frequently present

accessory nerve which runs to it from the nerve to the subclavius: or it may be divided and the accessory nerve also cut (radical phrenicectomy) or finally the "crush" operation is often employed. This last measure is of great value when the effects of hemi-diaphragmatic paralysis are speculative. For example, we know that a phrenic paralysis may close a soft-walled apical cavity, but far more commonly it does not do so. Should it fail, a local upper thoracoplasty or an extra-pleural artificial pneumothorax may be successful. If such local operations are employed it is obviously a great advantage to have the diaphragm moving so that the normal lower lobe may be retained for its respiratory value, and because there is evidence that an upper thoracoplasty performed on a patient with a paralysed diaphragm is often followed by massive collapse of the lower lobe. The advantages of phrenic crush then are that it is not so irremediable (function being often regained in six months), and if it fails to have its desired effect the return of function is allowed: if, however, the crush is followed by satisfactory results the effects are made permanent by proceeding to an avulsion or radical phrenicectomy.

It is impossible to describe in detail the indications for phrenic nerve operations, but in the past too much has been expected of this operation. Its uses are:—

1. To provide rest when the lung is in the state of early productive disease with young fibrous tissue, the contraction of which will often be greatly helped by diaphragmatic relaxation.

2. To supplement an artificial pneumothorax and especially at the end of artificial pneumothorax treatment when the lung is being allowed to creep out; for

PLATE III.

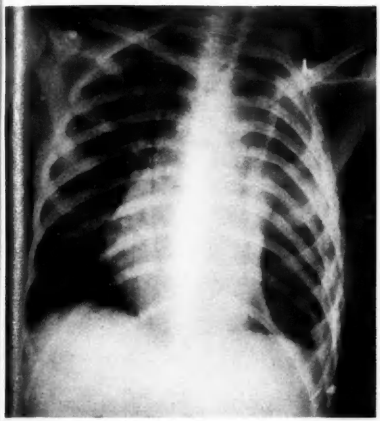

FIG. 8.

A chronic empyema of many years' duration. After adequate redrainage for many months the lung would not expand and thoracoplasty was necessary.

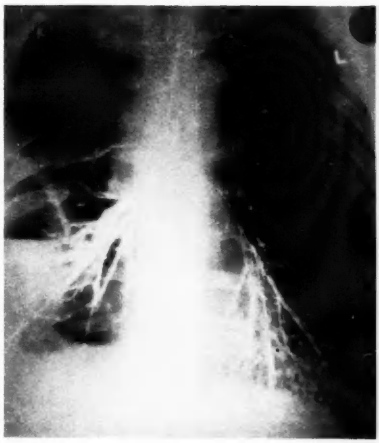

FIG. 9.

A large chronic empyema. Lipiodol has been injected into the trachea. At operation the walls of the empyema were found to be calcified.

FIG. 10.

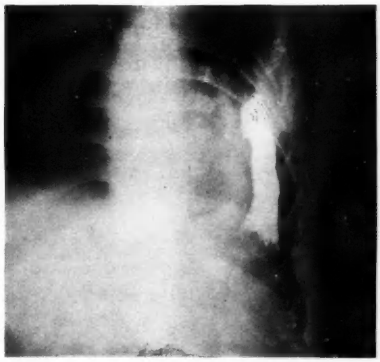

FIG. 11.

A plain X-ray and one taken after lipiodol has been run into the sinus of the patient shown in Fig. 7. In Fig. 11 note that although posterior segments of rib have been removed and the empyema has been redrained, there is still a large cavity left. This was later closed by Roberts's method.

PLATE IV.

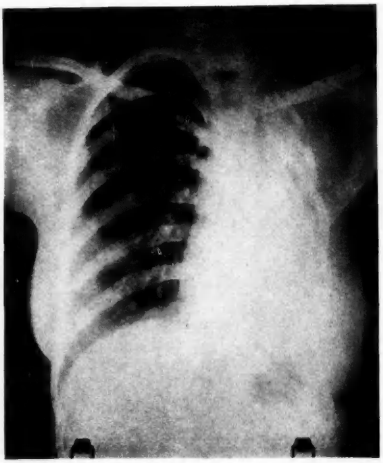

FIG. 12.

Ten rib thoracoplasty for fibro-cavernous tuberculosis.

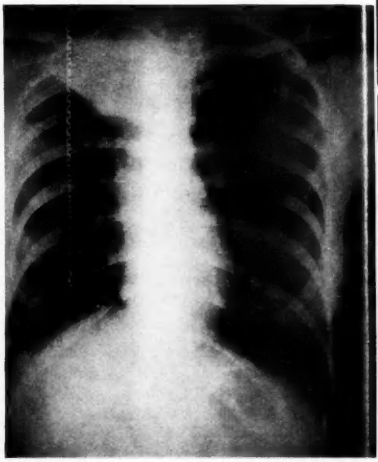

FIG. 13.

Radiograph showing a collapsed upper lobe due to an adenoma of its bronchus.

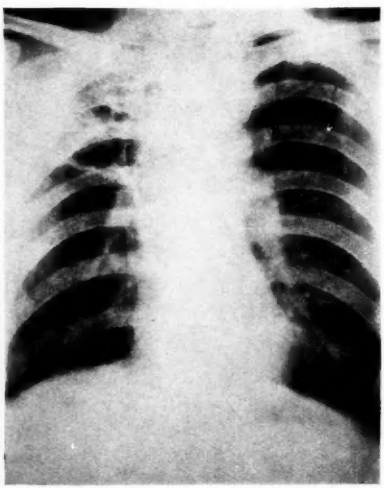

FIG. 14.

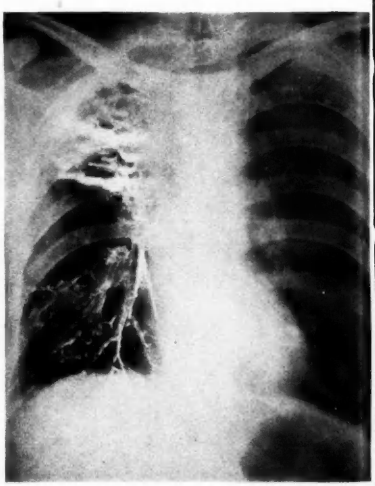

FIG. 15.

Congenital cystic disease of the right upper lobe before and after lipiodol bronchography. (Sully Hospital.)

the dimensions of the pleural cavity into which the previously diseased lung must expand can thus be decreased.

3. As symptomatic treatment, *e.g.* for relief of a non-productive cough due to diaphragmatic adhesions, of pain after pleurisy, or of tachycardia due to pericardial adhesions.

4. For the collapse of cavities by relaxation. There is no doubt at all that the operation may be followed by closure of quite large cavities. I do not want you to think, however, that I am too sanguine about the prospects of cavity closure by phrenicectomy: the results are good in a few cases, but many more have cavities uninfluenced than have them closed.

5. After the absorption of some pleural effusions.

Thoracoplasty.—Collapse operations are now frequently employed in the treatment of chronic pulmonary tuberculosis of the productive type, especially when cavitation is present. The great underlying principle of these operations should be to provide rest and relaxation to the lung. The chief indications for thoracoplasty are in unilateral disease in people between the ages of eighteen and forty-five. In selecting patients the general condition and temperament are important factors; tuberculosis elsewhere, apart from laryngeal lesions, may be a contra-indication. However good the collapse obtained, the operation is not so satisfactory as a really good artificial pneumothorax, except in patients with very chronic disease with marked distortion of the mediastinum and trachea and extreme narrowing of the intercostal spaces. Bilateral collapse operations of the apices are being employed fairly frequently.

TYPES OF OPERATION PERFORMED.

1. *The classical Sauerbruch extra-pleural paravertebral thoracoplasty.*—For chronic fibrotic unilateral lesions with extreme lung involvement this operation provides brilliant results with low mortality rates. Such patients have an obvious resistance to their disease, and the excision of posterior segments of ribs 1 to 10 greatly benefits the natural tendency of the hemi-thorax to collapse and to shrink. The ribs are resected back to the transverse processes of the vertebræ to enable the divided anterior ends to sink backwards and downwards and also to fall in laterally in the fashion of a bucket-handle. The operation as done now is divided into two or three stages. Fig. 12 demonstrates the result of such an operation in a female patient, aged twenty-eight, who is now sputum-free and well. There is little or no obvious deformity. As good results were obtained in these favourable cases, efforts were made to close larger and larger cavities, and for this purpose it was found that larger segments of ribs required excision. For this reason the whole of the first, second and third ribs are now frequently removed.

Apical thoracoplasty: apicolysis and Semb's operation.—In patients with upper zone cavities it may be unnecessary to remove more than the upper ribs, the healthy basal lung being conserved. On the Continent many subclavicular cavities have been attacked by the operation of apicolysis. In this procedure the third rib is removed through a subscapular incision, the pleural dome is separated from the endothoracic fascia and overlying ribs, and the spaces so created filled with a compressing agent.

The commonest agent is paraffin wax, though fat and pectoral muscle, inserted through an anterior incision, have been used. In addition to the objection to wax as a foreign body (which may be extruded through the wound or may ulcerate through into a bronchus to be coughed up bit by bit) these compression operations are opposed to the principles of relaxation. In this country they are not considered with favour, and in the last few years have been largely replaced by two operations (*a*) Semb's extra-fascial pneumolysis and (*b*) extra-pleural artificial pneumothorax.

The Semb operation.—After the whole of the upper three ribs have been excised a careful dissection is made to mobilize the dome of the pleura from the stout fascial bands which pass to it from the scalene muscles. These bands, which fuse to form Sibson's fascia, pass down between the subclavian vessels and the brachial plexus. When they have been carefully divided, especially on the mediastinal aspect, the apex of the pleura with the underlying adherent lung falls to below the level of the fourth rib. The relaxation so provided has proved of the greatest value in the obliteration of large cavities, since the collapse obtained is concentric as well as lateral and antero-posterior as in the usual type of thoracoplasty. In most patients it is necessary a few weeks later to excise segments posteriorly from the fourth, fifth, sixth and seventh ribs to allow the scapula to "bed in."

Extra-pleural artificial pneumothorax.—This procedure appears to be of great value in the treatment of upper zone cavities and can be employed when artificial pneumothorax is indicated, but cannot be induced because of dense adhesions between the

visceral and parietal pleura. Moreover, it is less mutilating and shocking than thoracoplasty and can be used when the general condition of the patient would not permit such a drastic operation. The principle of the operation is to mobilize the parietal pleura away from the endothoracic fascia at the apex, laterally, anteriorly, and on the mediastinal surface. The approach is similar to that used for apicolysis, but the extent of stripping is far greater. After all bleeding has been stopped the wound is carefully closed so as to be quite air-tight, and then an induction of an extra-pleural artificial pneumothorax is carried out to fill with air the space created by the operation (Fig. 3). Although at the beginning a little air escapes and causes subcutaneous emphysema, this soon absorbs, and an astonishingly good collapse can be obtained. At first refills are given more frequently than in intra-pleural artificial pneumothorax, but ultimately the periods can be lengthened. The operation is still in the experimental stage and it is impossible to say yet whether thoracoplasty will be required later for some of the patients. At present, however, we are pleased with the operation and hope that it will lessen the indications for the more severe operation of thoracoplasty.

BRONCHIECTASIS.

The most conservative physician must welcome the surgical advances in the treatment of this distressing condition. The daily misery of many of the patients is reflected in a study of their history: often children are not allowed in school because of the fœtor of their breath and the paroxysms of their cough: many of them

are social pariahs from an early age: few adults with the disease can accept or obtain employment. In addition to the incapacitating symptoms and the general loss of health, their lives are constantly jeopardized by the risks of repeated pneumonia, empyema, brain abscess, and heart failure. Jex Blake's often-quoted figures show that the average expectation of life in a large series was about five years. This " medical " mortality must not be overlooked when considering that the mortality rate of lobectomy for unilateral bronchiectasis is about 14 per cent. In children under twelve years of age the mortality is far less.

Types of bronchiectasis.—I believe a good classification is as follows:—

1. Congenital cystic disease of the lung (not true bronchiectasis).
2. Congenital atelectatic bronchiectasis.
3. Acquired bronchiectasis.

These three types may involve one lobe, a whole lung, or be bilateral. The ideal case for lobectomy is one where the disease is confined to one lung and preferably one lobe. Success, however, is not by any means impossible even if the entire lung requires removal. In the selection of patients bronchography by means of lipiodol is essential: each side should be done separately, so that good lateral as well as antero-posterior views can be obtained and the exact state of the disease noted. Bronchoscopy and preliminary postural drainage are necessary before proceeding to lobectomy, which is now a one stage operation performed through an intercostal incision without rib resection. The essential feature of the after-treatment is the provision of underwater drainage to encourage

expansion of the other lobes and to allow the cure of the empyema that often develops.

Congenital cystic disease of the lung.—This is by no means a rarity: the condition may involve a whole lung, one lobe, or cause solitary cyst. Symptoms such as sudden dyspnoea due to rupture of a cyst causing a spontaneous pneumothorax may come on in childhood, but more commonly cough with foul expectoration indicates an infection of the cysts. Figs. 14 and 15 show a typical example affecting the right upper lobe before and after lipiodol bronchography. Fig. 16 shows a right lower lobe removed successfully from a boy of $3\frac{1}{2}$ years of age who had had a cough since infancy. Fig. 17 is a photograph of a cystic lobe removed successfully from a girl who previously had 6 to 10 ounces of foul sputum a day and who could not obtain employment: she now works as a waitress.

Congenital atelectatic bronchiectasis.—This is a condition seen most commonly in the left lower lobe of the lung: the history is one of persistent cough following some infantile illness. Physical signs and radiology disclose a collapsed lower lobe and lipiodol bronchography demonstrates the dilated bronchi. On a plain radiograph such lobes are triangular in outline. It is probable that such a lobe did not fully expand at or after birth and later became infected (*e.g.* during the course of measles, after broncho-pneumonia). Fig. 18 is a typical example of such a lobe: it was successfully removed from a girl of twenty who had 5 to 10 ounces of foul sputum every day for years.

Acquired bronchiectasis. — This is frequently a bilateral condition affecting the lower lobes and developing after pneumonia, and quite often associated with

naso-pharyngeal infection. The dilatation of the bronchi is usually cylindrical. Fig. 19 represents the left lower lobe of a girl of twenty who had cough and sputum for many years, and who had had several operations on the nose and sinuses. A year after successful lobectomy she developed frontal sinusitis and died from spreading osteomyelitis of the skull. On the whole these patients are not such good surgical risks as the congenital or atelectatic types.

Collapse operations for bronchiectasis.—Thoracoplasty rarely succeeds in collapsing the cavities even if very wide resections have been done, and is rarely required. In one patient with right upper lobe bronchiectasis with hæmoptysis I obtained a good result after an upper thoracoplasty in which extensive segments of ribs were removed.

Phrenicectomy is a bad operation in bronchiectasis, as it fails to influence the cavities and removes power from the cough mechanism. If the nerve has been removed before lobectomy it is a serious handicap not to have a mobile diaphragm which helps the remaining lung tissue to expand. The only justification for the operation is when lipiodol bronchography shows evidence of a commencing dilatation of the bronchi in an area of unresolved pneumonia. I have been able to arrest cough and hæmoptysis in one patient in this class by phrenic avulsion.

Lung Abscess.—The mortality of this is distressingly high, and the time is probably coming when we shall have to abandon our rather indefinite teaching—"medical treatment for six weeks and then consider surgery." Space does not allow me to discuss treatment by early operation when the lung is in a state of early

gangrene, or by lobectomy when the condition is more advanced. Many patients have apparently cured themselves by coughing up the abscesses into a bronchus (help being given by postural drainage), but a dismally high proportion of these people develop severe bronchiectasis later and often the opening into the bronchus becomes blocked by granulation tissue. Bronchoscopy is stated by some to give the best results, but over-enthusiasm will be abandoned if the after-results are carefully assessed. Drainage by surgery usually means a two-stage operation: ribs overlying the abscess are removed, and the wound packed with iodine gauze for some days to produce adhesions between the visceral and parietal pleura. The abscess is then opened widely, preferably with the cautery, and packed. The packing should be left *in situ* for some days until it separates easily, and is then removed and replaced. I have found drainage tubes to be unsatisfactory.

THORACIC TUMOURS AND CYSTS.

This is perhaps the most interesting aspect of modern thoracic surgery. The future treatment of malignant primary growths of the lung seem to rest with total pneumonectomy: as Mr. R. C. Brock says, it is as illogical to remove a segment of breast invaded by carcinoma as to treat lung cancer by lobectomy. This field offers a wide scope for improvement in technique, but I feel sure we must persist in our efforts, for radium and deep X-ray therapy have little to offer. Innocent tumours of the bronchus are commoner than was formerly thought and can be

PLATE V.

FIG. 16.

Cystic disease of right lower lobe removed from a child of 3½.

FIG. 17.

Cystic lobe removed by operation from a patient of 20.

FIG. 18.

Congenital atelectatic bronchiectasis: Operation specimen.

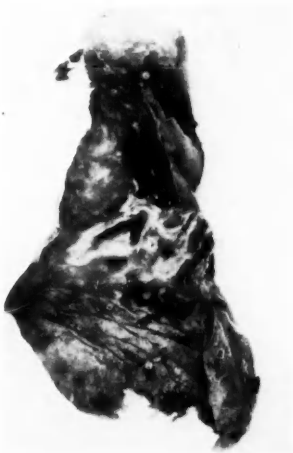

FIG. 19.

Acquired bronchiectasis: lobectomy specimen.

PLATE VI.

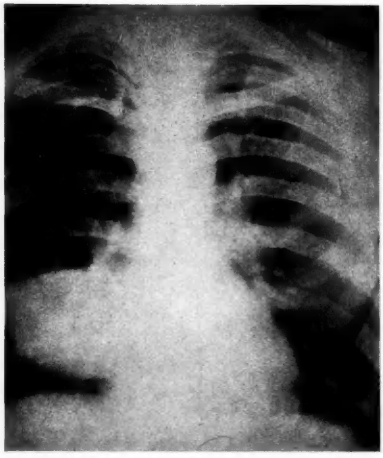

FIG. 20.
Radiograph of primary pleural cyst.
(By permission of the British Journal of Surgery.)

FIG. 21.
The cyst after excision.
(By permission of the British Journal of Surgery.)

recognized by bronchoscopy, which should be done in all cases of obscure hæmoptysis and cough ; they can be treated by diathermy or by a radon seed container. Fig. 13 represents the radiograph of a young woman of twenty-five who for years had suffered from a dry cough and had spent two years in a sanatorium. The appearance seen is that of a collapsed upper lobe. Bronchoscopy failed to show any obstruction, but after removal of this lobe by operation the cause of the collapse was seen to be a small innocent adenoma of the bronchus leading to the collapsed lung tissue.

Intra-thoracic tumours that are extra-pulmonary.—Amongst others, dermoid cysts, retro-sternal goitres, and neuro-fibromata are the cause of obstruction and compressive symptoms such as pain, dyspnoea and obstruction to the great veins, and produce cough and sputum by pressure upon the bronchi. I cannot here describe the differential diagnosis, but they offer excellent material for life-saving surgery and provide great arguments in favour of exploratory thoracotomy for doubtful shadows associated with symptoms. Fig. 20 is a slide of a man who complained of pain in the right chest, and cough ; note the circular shadow which is situated in the diaphragm and was seen on the lateral radiographs to be in the posterior mediastinum. The Casoni test for hydatid disease was negative. My preoperative diagnosis was that of a posterior mediastinal fibroma, but at operation I found and removed a primary pleural cyst (Fig. 21). I have recorded this patient and others suffering from the same condition.[2] Other conditions treated are a neuro-fibroma, a malignant tumour of the chest wall, and several patients who have been operated upon for

hydatid disease of the lung. Two of these are rather rarities, as they represent the first hydatids treated by one stage lobectomy and have been recorded (d'Abreu 1937 and 1938).[3] Hydatid disease is not a rare condition in South Wales, and as many people have now crossed the Bristol Channel to live in your great city you may from time to time meet with the disease.

REFERENCES

[1] *The Lancet*, 11th December, 1927, p. 1,371.

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A CASE OF LOBECTOMY FOR BRONCHIECTASIS.*

BY

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THIS communication is made as the surgery of lobectomy is in its infancy and the success in this patient is encouraging.

The case was particularly unfavourable owing to the age of the patient, over forty years, the rigid chest wall, and the complete obliteration of the pleural space by adhesions. The prolonged operation involved did not prevent a successful issue. Corroboration of the importance of these factors is afforded by the reports of cases operated on by Tudor Edwards.[1]

History.—The symptoms in Mr. J. F., aged forty-two years, asserted themselves with alarming vigour first on 15th May, 1935, by an hour's expectoration of foul pus and blood. He collapsed that evening, and the trouble kept him in bed for eight weeks. There had been mild pain over the lower left ribs for eighteen months previously, but only on exertion.

The putrid expectoration lasted a day or two, recurred fortnightly, and was pronounced by the doctor

* The patient was shown at a meeting of the Bristol Medico-Chirurgical Society on Wednesday, 12th January, 1938.

as typical of bronchiectasis. It was accompanied by attacks of hæmoptysis, and on one occasion he was nearly choked by a pint of blood, pus and membranous substance. Permanent pain developed in the lower left chest, often like a "hot coal." He became very dyspnœic, and finally, for two months, had morning vomiting.

Examination in December, 1936, showed a man of stocky build and ruddy complexion. The pulse was 108. There was diminished movement and impaired percussion note at the left base. A tender liver edge was palpable. Plain skiagram showed opacity of the left lower lobe, suggesting bronchiectasis. The sputum was repeatedly negative for tubercle bacilli.

After a few months postural drainage his expectoration diminished and became negligible, and the bronchogram (Fig. 1) clearly revealed left lower lobe bronchiectasis. Preoperative artificial pneumothorax was attempted, but failed owing to adherent pleura.

16th June, 1937. *Operation.* Lower lobectomy of left lung under spinal anæsthesia. (Percaine).

The seventh left intercostal space was slit and 1 in. of rib above resected near its neck. The lung was densely adherent except over the pericardium. Difficulty in defining the diseased base of the lung from the parietes was most daunting, especially in his big rigid chest. But the feeling that his only chance was "now or never" prevented me from relinquishing the effort to complete the operation in one stage. Although the semi-necrotic tissue tore, no visible pus exuded from the lung. The pedicle was first commanded by a tourniquet, then divided, and the bronchial and vascular openings closed by mattress

PLATE VII.

FIG. 1.

Bronchiectasis in lower left lobe demonstrated by intratracheal injection of lipiodol.

PLATE VIII.

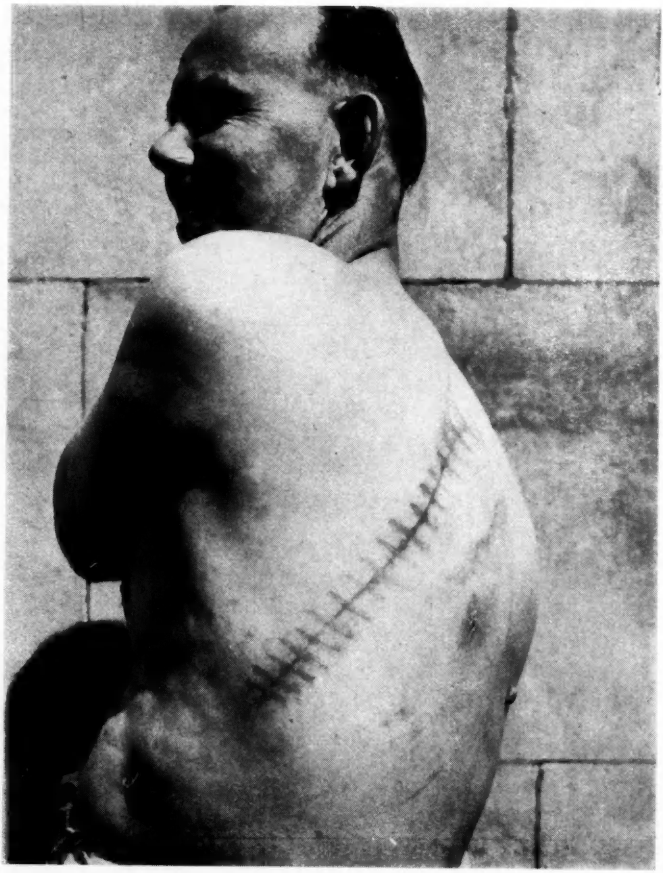

FIG. 2.
The healed scar eight weeks after operation

sutures. The stump was oversewn. During this period blood transfusion commenced. A No. 26 Malecot catheter drain was inserted through the ninth interspace and the chest wall closed. He was rather grey and poorly even before the operation was commenced, and the pulse was very feeble during the procedure. It improved at the close and there was no coldness or sweating.

The lobe had been converted into airless, pulpy, friable tissue surrounding the dilated bronchi. Dr. Fraser reported some small areas of tuberculosis in the specimen.

He appreciated the oxygen tent to which he was returned, distress was never apparent, nor did it ensue when the tent was removed at sixty hours. He never seemed breathless and only coughed up a few blobs of bloody mucus. The airtight drain was joined by a glass connection to a tube ending under water in a bedside bottle. About a pint of bloody fluid collected during the first twenty-four hours, but this rapidly lessened. This underwater drainage ensured the maintenance of negative intrapleural pressure and gave evidence that the catheter was not blocked, as shown by the oscillating column of fluid.

Intermittent pain in the chest was the only symptom that troubled him during convalescence, and by 13th July, 1937, his temperature and pulse were normal. In the skiagrams the upper lung appeared to have expanded to the diaphragm and no pus was aspirable from the chest, so the tube was withdrawn. He expectorated a few blobs of nummular sputum about this time and on 10th August, 1937, left the Infirmary.

The photo (Fig. 2) of the patient on this date is

by Mr. Wilfrid Willway, our surgical registrar, who kindly helped with the operation.

In January, 1938, he reported the symptoms had completely left him and his sole complaint was pain deep to the scar, due to adhesions or intercostal neuritis, and not preventing him eating and sleeping well and attending to his duties as a publican. His weight is, he thinks, increased (14 st. 4 lbs.). On auscultation the breath sounds are satisfactory, as is the skiagram.

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[1] A. Tudor Edwards and G. Price Thomas, *British Journal of Surgery*, vol. xxii, No. 86, October, 1934, p. 310.

Reviews of Books

Surgery of the Sympathetic Nervous System. Second Edition. By G. E. Gask, F.R.C.S., and J. P. Ross, M.S., F.R.C.S. Pp. xii., 191. Illustrated. London: Baillière, Tindall & Cox. 1937. Price 16s.—So many ailments may be relieved by the comparatively new and unfamiliar operations on the sympathetic nervous system that it seems worth while to review this excellent book somewhat more fully than usual. A centre has been discovered in the hypothalamic nuclei, stimulation of which in animals causes signs of sympathetic vasoconstriction, raised blood pressure and output of adrenalin. A tumour in a human case has been described which corroborates this evidence. Clinical evidence shows that periarterial sympathectomy in certain cases does good, in spite of the theoretical difficulty in explaining why; the peripheral vasodilatation persists for three to four weeks, which may be sufficient to lead to the healing of chronic ulcers. Pain arising from vascular conditions such as causalgia, Raynaud's disease, gangrene or intermittent claudication may be permanently relieved by a periarterial sympathectomy. It is especially indicated in cases of senile or diabetic gangrene of one or two toes, without fever or toxæmia. The toes may be left to drop off, or the last strands of tissue may be snipped through. The complete removal of all nerve-fibres is facilitated by a trickle of normal saline, and the fibrous sheath in which the artery and the vein run should be excised as well as the adventitia. The artery will contract down to a very small cord when the operation has been properly performed. Although animal experiment would seem to indicate that pre-ganglionic section of the sympathetic trunk will give more permanent results than ganglionectomy for Raynaud's disease, the authors doubt if this is so in practice. Good descriptions are given of the anterior and posterior methods of approach for removal of the stellate and neighbouring ganglia; they find the anterior route easier. Cases of Raynaud's disease uncomplicated by ulceration or sclerodermia generally give a very happy result; those with sclerodermia are seldom

benefited. Lumbar ganglionectomy gives a better result than stellectomy. Thrombo-angiitis obliterans is sometimes benefited, sometimes not; it is valuable to take an arteriogram by means of X-rays and thorotrast to discover if main arteries are blocked. Polyarticular rheumatoid arthritis involving the wrists and hands or feet and ankles is suitable for sympathectomy, and at first the results may be brilliant, but there is often some relapse later. Patients with erythrocyanosis frigida of mild degree show much improvement, but those with a good deal of thickening of the ankles are less promising. To test whether sympathectomy will be good in a case of Hirschsprungs' disease, valuable evidence may be obtained by giving a spinal anæsthetic and watching the effect on a barium enema. If peristalsis of the colon occurs, there was sympathetic inhibition, and operation is likely to give a satisfactory result. Many operations have been proposed and performed: ramisectomy, which is difficult on account of the small size of the nerve fibres; left lumbar ganglionectomy; division of the presacral nerve over the sacral promontory, and the stripping of its middle and lateral roots off the left common iliac vein and the bifurcation of the aorta up as far as the origin of the inferior mesenteric artery, and baring of the proximal inch of the artery. If one goes further one is likely to damage the parasympathetic (motor) fibres derived from the sacral plexus. The last operation appears to be the best, but in male patients it may lead to sterility. Sympathectomy for cardiospasm has been disappointing. As is well known, resection of the presacral nerve usually stops the pain of spasmodic dysmenorrhæa; for vesical pain the results are disappointing in malignant cases, encouraging for long-standing painful cystitis. There is a type of renal pain associated with slight dilatation of the pelvis and clubbing of the calices which is relieved by stripping the nerves off the renal vessels. Suitable cases are those in which the pain can be reproduced by distending the renal pelvis, but it is abolished by an injection of eserine. Good results have been obtained in patients with angina pectoris, in about two-thirds of the cases, by removing the inferior cervical, first and second thoracic ganglia on the left side. The difficult ailment called "causalgia," in which after a nerve injury or amputation the patient complains bitterly of pain, and atrophic changes associated with skin red when warm and blue when cold, can usually be relieved by sympathectomy, though why it succeeds is far from clear. Periarterial sympathectomy is often sufficient, but ganglionectomy is more reliable.—A. R. SHORT.

The Baths of Bath. By P. R. JAMES, M.A. Pp. 176. Illustrated. Bristol: J. W. Arrowsmith Ltd. 1938. Price 5s. This is an interesting and amusing account of the early development of Bath as a therapeutic centre after the Corporation obtained possession of the monastic baths. Lavish quotation from contemporary documents and reproduction of early illustrations add much to its value.

Studies on the Physiology of the Middle Ear. By J. G. BYRNE, M.D., LL.D. Pp. xi, 298. Illustrated. London: H. K. Lewis & Co. Ltd. 1938. Price 18s.—The author of this book describes a series of experiments on animals in which the actual movement of the tympanic membrane in response to excitation of the tensor tympani and stapedius muscles is directly measured. There is a useful summary at the end of each chapter, and the book is well produced, illustrated and indexed.

Surface and Radiological Anatomy. Edited by A. B. APPLETON, M.A., M.D., W. J. HAMILTON, M.B., B.Ch., D.Sc., F.R.S.E., and I. C. C. TCHAPEROFF, M.A., M.D., B.Ch., D.M.R.E. Pp. xi., 311. Illustrated. Cambridge: W. Heffer & Sons Ltd. 1938.—The authors have produced a book which aims, by the extensive use of illustrations, to co-ordinate radiological anatomy with features which can be ascertained by external examination and by dissection. For this reason the book will be best appreciated by those who have a knowledge of normal radiological appearances. The large number of plates and figures should be a great help to the student in gaining this knowledge. The authors suggest that senior students should make greater use of other physical methods of examination. Explanatory diagrams are included for the study of the distribution of nerves by means of the Smart-Bristow coil. Short notes have been included dealing with certain diagnostic techniques such as gastroscopy, kymography and thorotrast examinations. For some reason no mention has been made of tomography. Anatomical regions are each given a separate chapter. Emphasis is laid on the normal, and great care has been exercised in the selection of suitable illustrations. These are good, although in the method of reproduction used there is a certain loss of detail in the radiographs. Radiographs are reproduced as negatives, in which form they are generally examined, and there has been no retouching. In all there are over 338 illustrations in a book of 311 pages. The index is sound and there are some useful tables at the end of the book.

Report on the British Health Services. Pp. viii., 430. London: P.E.P. (Political and Economic Planning). 1937. Price 7s. 6d.—The most recent volume issued by P.E.P. on the British Health Services is one of the most comprehensive reports on this subject available in this country, and will appeal to both medical and lay men alike. It is issued at a time when the campaign for using the health services is in full swing and will serve as a most useful book of reference for indicating the varied number of ways of promoting health and fitness. The report covers national, municipal and voluntary services, the term "health services" being used in its widest sense, e.g. to cover protection of food supply, control of the trade in medicine, infectious disease, industrial health, maternity and child welfare, school medical service, organization of the medical profession and medical services generally, nutrition, physical education and psychological medicine. The report is a most valuable review of the general position because it is not the work of a single individual but represents the considered views of persons drawn from many professions both medical and lay. As the report indicates, until recently medicine was largely confined to work of a curative nature and health was thought of as being merely "free from illness" but now it is something positive and implies the facility to enjoy life to its fullest extent from all aspects. In the section dealing with National Health Insurance it is natural that this should centre round the general practitioner, and advocate the general practitioner as being the pivot of the extended scheme. Some of the writers question this desirability and indicate their preference for state medical service. The report deals with proposals for future development generally, including the need for pushing forward the improvement in nutrition, particularly by extending milk schemes, and puts forward the theory that existing health services should be better used both by the public and by other health services, that National Health Insurance should be extended to cover dependants of existing insured persons and that much more research should be done on medical, social and economic causes of ill-health.

Collected Papers on Tuberculosis. By SIR R. W. PHILIP, M.D., LL.D., F.R.C.S., F.R.S.E. Pp. x., 460. London: Oxford University Press. 1937. Price 21s.—This volume derives its significance from the fact that Sir Robert Philip has played a dominating part in the inception and determination of anti-tuberculosis measures for half a century. He tells how his interest in the problems of tuberculosis was

"awakened beyond recall" in 1882, while on a study tour in Vienna. No time could have been more opportune for the impact of a young and vigorous mind on these problems, for the older generation of medical men was ill prepared for the new orientation imposed by the discovery of Koch's bacillus. Full of enthusiasm, Philip returned to Edinburgh, to face both active and passive opposition to any new approach to a subject regarded as already threadbare. It was in the teeth of this that he established, in 1887, the "Dispensary System," since adopted all over the world. The Victoria Hospital for consumptives followed, and as early as 1898 he put in a plea for a "tuberculous colony where poor patients might be enabled, for long periods and under hygienic conditions, to maintain themselves honourably." Notification, contact examination, isolation of advanced cases, after-care and open-air schools were all urged by him at a time when such things were not only unthought of, but aroused strong opposition when suggested. Philip indeed suffered the customary fate of the medical pioneer in his statesmanlike efforts to formulate a scheme of organized and co-ordinated operations against tuberculosis. But he had his reward; to few is it given to see his early labours bear such abundant fruit. These Collected Papers, the first published in 1898 and the last in 1934, record his consistent advocacy of the policy and method which he first introduced in Edinburgh on a voluntary basis, and which in 1911 was adopted for the whole country when legislation was for the first time specificially directed against tuberculosis. As such they are full of interest to all who are working to improve the health of the nation.

The Physiology of the Kidney. By H. W. SMITH, A.B.; Sc.D., M.S. Pp. 10, 310. Illustrated. London: Oxford University Press (Humphrey Milford). 1937. Price 15s.—This review of the more recent work regarding the function of the kidney should prove most useful to those who wish to bring up to date their knowledge of this difficult subject. It is divided into three parts: the first includes the theories of renal function, glomerular filtration, tubule activity, and a very useful section on renal clearances; the second deals with the kidney as a regulator of the composition of the plasma; and the third contains chapters on water excretion, diuretics, renal nerves and blood flow. The discussions and explanations are clear and a considerable amount of literature has been digested; the references cover about 500 papers since 1920. The style is easy and there is a satisfactory index. A few obvious misprints will no doubt be corrected in a subsequent edition.

Practical Procedures. Edited by Sir HUMPHRY D. ROLLESTON, Bart., G.C.V.O., K.C.B., M.D., F.R.C.P., and A. A. MONCREIFF, M.D. Pp. 293. Illustrated. London: Eyre & Spottiswoode Ltd. 1938. Price 10s. 6d.—This is announced as "a really practical guide to clinical procedures" to fill the gaps which modern hospital teaching has left in the knowledge of the general practitioner. Several of the chapters admirably accomplish this end. But it is difficult to believe that by the time he has qualified the practitioner has not had ample experience of blood counts, the use of the sphygmomanometer, passage of catheters and clinical examination of the urine, to give four examples: or on the other hand that the description given here of artificial pneumothorax, the spinal plaster jacket, blood transfusion, auto-transfusion for ruptured spleen, or local anæsthesia for bronchoscopy will really bring these methods within the scope of general practice. Much of the book is devoted to syringe-and-needle work—there is even a chapter on three-way syringes. And there is much repetition: for example, local anæsthesia of the urethra is described three times, while both three-way and two-way syringes are illustrated twice over. The book is pleasant to handle and easy to read, and meticulously indexed.

Essentials of Modern Medical Treatment. By VINCENT NORMAN, M.D., M.R.C.P., F.R.C.S. Pp. xvi., 200. Hutchinson Scientific and Technical Publications. 1936. Price 10s. 6d.—This book may be described as a précis of medical treatment. As far as it goes it sets out clearly and accurately the standard forms of treatment in various diseases, but the student who requires a more detailed description of treatment will necessarily have to consult larger works on the subject.

Food and Physical Fitness. By E. W. H. CRUICKSHANK, M.D., D.Sc., M.R.C.P., F.R.S.E. Pp. xi., 148. Edinburgh: E. & S. Livingstone. 1938. Price 5s.—During the session 1936-37 Dr. Cruickshank, Regius Professor of Physiology in the University of Aberdeen, gave a series of public lectures under the James Farquhar Thomson bequest. Those lectures form the basis of the book now reviewed, which deals in the main with the part played by food in the maintenance of physical fitness. Whilst recognizing that nutrition depends upon many factors besides the mere supply of sufficient and suitable food, Professor Cruickshank maintains that food is the foundation of health. Thus his book becomes another of the numerous simple expositions of foods, their composition

and their utilization, with which the medical profession and the public are familiar. In some respects the work is not reliably up to date ; for example, the grading of milk as quoted is that applicable to Scotland, which differs slightly from the " special designations " laid down for England and Wales. The use of the term " physical fitness " in the title might lead to an expectation that the problems of exercise, athletics and " keeping fit " would come under consideration. This aspect of nutrition is not, however, dealt with, which is a pity, seeing how much our knowledge has recently been enlarged by the studies of the Glasgow physiologists and the writings of Dill in America. Taken as an unpretentious account addressed to the non-medical public it may convey a good deal of accurate and useful information.

Speech Training for Cases of Cleft Palate. By M. C. OLDFIELD, M.Ch., F.R.C.S. Pp. ii., 18. Illustrated. London : H. K. Lewis & Co. Ltd. 1938. Price 4s. 6d.—The value of this slight but attractively produced book lies in the fact that the information is given clearly and simply. It should prove an easy introduction to the possibility of help for cleft palate speech. The speech therapist and the cleft palate patient will both agree, I think, that it is not possible for adult patients to " forget their old bad habits of speech before learning the correct method of pronunciation " (page 1). If this were only possible how much easier the task of re-education would be ! The first essential is surely to learn the new method of pronunciation and then by " daily conversation practice "—to quote Miss Kingdon Ward—" gradually build up the newly-acquired method of speech." The photographs of the groups of children, showing the interesting methods used for the exercises, constitute the most valuable part of this somewhat scanty work. These should prove helpful, instructive and illuminating to both parent and speech therapist.

Occupational Therapy : an Addendum to the Handbook for Mental Nurses. By Miss RUTH DARWIN. Pp. 16. London : Baillière, Tindall & Cox. 1938. Price 6d.—This admirable booklet has been published in advance of the rest of the new edition of the *Handbook for Mental Nurses*, and gives in a clear and well-arranged manner instructions to the nurse whose job it is to carry out her part in the occupational work of the hospital. The author shows " that Occupational Therapy benefits all types of patients, excepting, of course, those who are gravely ill or in need of absolute rest, and that

extensive facilities are required for providing it," and she reviews the special requirements of each type of patient, from the habit training of the most deteriorated patient to the elaborate handwork of the intelligent and cultured men and women whose minds are temporarily disordered. For those who wish to realize the complete change of atmosphere brought about in the mental hospital by the occupation officer's work, this booklet is strongly recommended.

Emergency Surgery. Third Edition. By HAMILTON BAILEY, F.R.C.S. Pp. xii., 852. Illustrated. Bristol: John Wright & Sons Ltd. 1938. Price 50s.—The young surgeon faced frequently with the treatment of urgent injury or illness is often glad to turn to an authoritative text-book for light on his problems. To this author's manual he will not turn in vain, for it includes all the standard procedures and also the latest advances in technique. Where necessary, the method advocated is supplemented by sound reasoning or by citing cases to exemplify the technique. Everything is told in lucid and succinct diction and the story is enriched by admirable illustrations. The publishers are to be congratulated on the clarity of the letterpress. There is no need to refer in detail to the different sections of the book, which range through the whole realm of surgery, including ear, nose, throat (by Mr. Watson-Williams) and eyes: for this production, unlike so many text-books, is not good in parts only, but very good throughout. The volume affords an invaluable aid and one which, within its handy compass, is unsurpassed in providing accurate information for every student, qualified or unqualified.

Thoracic Surgery. By F. SAUERBRUCH and L. O'SHAUGHNESSY, F.R.C.S. Pp. viii., 394. Illustrated. London: Edward Arnold & Co. 1937. Price 50s.—The surgery of the thorax has made rapid strides of late years. Since much of it has been carried out in special hospitals and sanatoria the medical student is apt to see far too little of chest surgery during the course of his training. As a consequence of this it often happens that he has very rudimentary notions of the help which the surgeon is often able to give to the physician in the treatment of chest complaints. The same statement holds good of many general practitioners and of not a few general surgeons and physicians. As the result of this it is to be feared that many patients suffering from chest complaints fail to receive all the benefits which modern surgery might provide for them. The names of Sauerbruch and of

O'Shaughnessy are in themselves a guarantee that this volume will contain an authoritative exposition of thoracic surgery as it is practised to-day. It is much to be hoped that it will be widely read not only by those who themselves contemplate practising this branch of surgery, but by medical men generally. In it they will find much that is provocative of thought. Illustrations, printing and indexing are good and there is an excellent bibliography at the end of the book.

Actinomycosis. By Z. COPE, M.S., F.R.C.S. Pp.xii., 48. Illustrated. London: Oxford University Press. 1938. Price 15s.—Actinomycosis is by no means a rare disease, but it is just sufficiently uncommon to catch out the unwary; so it behoves every medical man to acquaint himself with its common characteristics. Mr. Cope marshals a good deal of evidence to show that, although most cases of human actinomycosis are due to an anærobic fungus of the kind commonly met with in carious teeth, infection by an ærobic type may occur. This type has most frequently been identified in actinomycosis of skin, lungs, and in the rare pyæmic form of the disease. Attention is drawn to the difficulty in isolating actinomyces, especially where mixed infection is present. Possibly some variation in the strains of infecting organisms may account for the extreme differences in response to treatment. It is of interest to note that "big jaw" and "woody tongue," which were at one time considered to be identical in origin, are caused, the former by the ray fungus, the latter by the gram-negative actino-bacillus. It is for the second condition that treatment by iodide of potassium was introduced and for which it is a specific. A few cases of this bacillary infection have been recorded in human beings. Iodine in some form is still the great stand-by, whether given by the mouth, preferably in milk or cream; intravenously as colloidal iodine; hypodermically in the form of "tiodine"; or even intratracheally as lipiodol when treating actinomycosis of the lungs. Surgery, X-rays and radium also play a very useful part at times. Mr. Cope has succeeded in producing an interesting and very readable monograph. It is well illustrated and contains some excellent coloured plates. A useful bibliography is appended and the book is well indexed.

Neuro-ophthalmology. By R. Lindsay Rea, M.D., M.Ch., F.R.C.S. Pp. xxii., 568. Illustrated. London: William Heinemann Ltd. 1938. Price 42s.—Mr. Lindsay Rea deserves warm congratulations for his book. While perhaps not of direct appeal to all practitioners, it is of great interest to a

much wider field than the ophthalmologist alone. Neurologists, general physicians, and the neuro-surgeon will find here, accurately and clearly described, all the ophthalmological facts relevant to their subject. Illustrations are numerous and excellent, many of them original; they have been well reproduced and the publishers are to be congratulated on the general excellence of the book. Mr. Lindsay Rea's happy Irish style, so well known to his fortunate colleagues, is well shown in this book, which is very readable, in spite of the often technical nature of the discussions. The book is designed to be used as one of reference as well as ready information, and there is an extensive bibliography. The author has not felt tied too tiresomely to the precise nature of his subject, and has given much accessory information, mainly neurological or pathological. This saves the enquirer much labour in referring from one book to another. The whole field has been generously covered, even to the inclusion of a section on neuro-ophthalmological changes in head injury cases. It is difficult to select any section for especial praise, criticism or comment, there being no doubt that the whole book is authoritative and excellent.

The Patient and the Weather. By WILLIAM F. PETERSEN, M.D., with the assistance of MARGARET S. MILLIKEN, S.M. Vol. iv., pt. 3. Organic Disease. Surgical problems. Pp. xxxvii., 651. Ann Arbor, Michigan: Edwards Brothers, Inc. 1938. Price $10.—We have received for review this one volume of a work which is to be completed in five volumes. The object of this encyclopædic monograph is the relation of disease to meteorological environment. The Hippocratic dictum that during violent changes of the weather one should neither purge nor apply cautery or knife to the bowels appears to be the text on which the present volume is based. There are many instances quoted of acute abdominal catastrophes coinciding with sharp rises and falls of the barometer. The author's object is to emphasize "the fact that the human must adjust to every environmental change of the atmosphere with far-reaching physiological changes." Although the book is heavy reading there is a great deal of interesting matter which cannot be lightly dismissed. The format of the book is novel. For the most part the pages are photo-lithographed from perfect typescript. Quotations from previously published articles are also photo-lithographed, so that the amount of new type-setting needed is minimized. The publishers explain that this method represents an attempt to make the publication of

scholarly and technical books in small editions pay for themselves by economies in printing and distribution. The venture is amazingly successful even if at first the sudden changes in type appear somewhat violent and trying. A thicker face of type in the typewritten sections would be more readable.

Disorders of the Blood. Second Edition. By L. E. H. WHITBY, C.V.O., M.C., M.A., M.D., F.R.C.P., D.Ph., and C. J. C. BRITTON, M.D., D.Ph. Pp. xii., 582. Illustrated. London: J. & A. Churchill Ltd. 1937. Price £1 1s.—The authors of this work have covered a very large and difficult field in a particularly successful manner. The title chosen aims at emphasizing the rarity of primary disease of the hæmopoietic system, and the fact that changes in the peripheral blood are usually a symptom of dysfunction in some other system of the body. A large part of the text is devoted to the anæmias, which are treated from the point of view of cell-size and hæmoglobin concentration. Clear accounts of normal and abnormal erythropoiesis are given, and these, together with clinical data and methods of treatment, render the book of interest both from the medical and scientific standpoint. The story of the advance of knowledge regarding pernicious anæmia is well presented, and points of differentiation from anæmias due to hæmolysis and other causes are indicated clearly. Thrombocytopenia and the formation of thrombocytes are discussed, and the various leukæmic and leucopenic conditions are described, as are also the blood changes due to infection and infectious diseases, and the large part played in blood diseases by disfunction of the spleen. In all these complicated and little-understood fields the available information is presented with clarity and the limitations of theories and methods of treatment are assessed. The bibliography is well chosen and is remarkably up to date, while the coloured plates depicting normal and abnormal cells and bone-marrow add greatly to the value of the book. Most readers will be grateful for the summaries given to the chapters, and the appendix containing technical details of investigations should be found invaluable.

Editorial Notes

Development of Thoracic Surgery.

THE development of thoracic surgery has been slow in comparison with that of other regions. Perhaps the reason (? explanation) is that the physics of lung expansion have been misconceived and the importance of atmospheric and intrapleural pressure overrated. Yet it is more than forty years since Sir William Macewen removed a whole lung for phthisis. The modest but dramatic way in which he announced this surgical achievement at the International Congress of Medicine in 1913 is unforgettable. The seventeenth Congress was held in London and on August 12th, 1913, Professor F. Sauerbruch opened a discussion on intrathoracic surgery.[1] In the course of his remarks Professor Sauerbruch explained the various methods which had been adopted to maintain the difference of pressure between the air inside and outside the lungs when the thorax had been opened. He described the somewhat elaborate pressure chamber which he had devised in order to render a free open thoracotomy safe.

Professor Tuffier sent a communication which was read in his absence. He had come to the conclusion, he wrote, that the danger of an operative pneumothorax had been overrated, at least if the pneumothorax had been slowly produced.

Then followed Professor William Macewen, of Glasgow. He said he wished to draw attention to two points. The first was the result he had obtained in removal of one lung for phthisis, and of this operation he had had four cases. One of these was shown (at the Congress) in excellent health eighteen years after the operation. The

[1] From the *Lancet*, 1913, ii. p. 551

second point related to the physics of the chest. He said it was usually taught that the lung remained in contact with the chest wall in consequence of the atmospheric pressure, but he did not accept this explanation. He showed by experiment that if two pieces of glass or rubber are pressed into contact they cannot be separated even when the atmospheric pressure has been reduced even to a few millimetres.

Thus Macewen had performed the operation of removal of the whole lung as long ago as 1897. Yet his pioneer work was almost forgotten until the War came, when surgeons again discovered that the physics of lung expansion were all wrong and intrathoracic operations were performed as freely as intra-abdominal. No one perhaps played a more important part in putting the bogey of differential pressure to flight than Professor Pierre Duval of Paris, whose "War Wounds of the Lung"[1] was the one surgical classic which the Great War brought forth. It was Duval who, in 1916, said: "The lung is no longer the dreaded organ it was before the War. . . . Surgery of the lung takes its place amongst the recognized procedures of general surgery." But even Duval seems to have forgotten Macewen's dramatic exposition at the Congress in 1913, and his Cavendish Lecture in 1906.[2] Professor Sauerbruch in his Macewen Lecture[3] delivered at Glasgow, paid a generous tribute to Macewen's pre-eminence in thoracic surgery.

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[1] Duval. *War Wounds of the Lung.* John Wright & Sons, Bristol, 1918.

[2] Macewen. "The Cavendish Lecture on Some Points on the Surgery of the Lung." *West London Medical Journal,* July, 1906.

[3] Sauerbruch. "Macewen Memorial Lecture," 1937. Glasgow University Press, 1937.

"A Woman's Calling."

THE National Association of Local Government Officers has published a brochure, "A Woman's Calling," which certainly deserves the notice of those interested in Nursing and Public Health Services.

Since the Lancet Commission on Nursing issued its report in 1932 the Association has been devising a scheme for recruitment and training of women engaged in the Public Health Services. This brochure explains the scheme and as it deals very fully with the Nursing Service no apology is needed for referring to some of the proposals in this *Journal.*

If the suggestions regarding nurses' hours of duty, freedom from oppressive regulations, and pay, were carried out, one imagines there would be little difficulty in getting suitable girls and women to undertake the Nursing and Public Health Services.

It appears that the suggestion of hours on duty which total 96 hours a fortnight can be arranged more easily than the suggested 48-hour week, and would not be unduly long. One day a week off duty and four weeks' holiday a year would be generous treatment: one wonders if this is possible.

As regards freedom from oppressive regulations, after the first year's probationership, discipline and orderly behaviour should have been sufficiently inculcated to allow such regulations to be foregone and to permit freedom for recreation in off-duty time without annoying restrictions. If a girl or a woman takes an appointment as clerk in a Public Health Department her free time is her own; there seems no

reason why a girl who has to do with matters of life and death should be considered unworthy of the same treatment. The regulations which press so heavily on the modern nurse are a legacy from the days when convents and monasteries were the only institutions in which the sick were tended. Moreover, Florence Nightingale's rules were undoubtedly very harsh.

As regards pay the scale proposed is really generous, but it might be contended that such pay would delate the voluntary hospitals' nursing service completely; that is, if money were the chief thing concerned.

Among the objectives set forth are certain reforms which the Association desires to urge upon the General Nursing Councils. These reforms are of a kind to enlist a considerable amount of support from the medical profession:—

(*a*) Divide the preliminary state examination into two parts: Part I, Anatomy, Physiology and Hygiene; and Part II, Theory and Practice of Nursing.

(*b*) Agree to the examination for Part I being taken prior to entry for general training.

(*c*) Require all hospitals recognized as complete training schools to admit probationer nurses at age 17–18 years to a three years' course.

(*d*) Require all hospitals recognized as complete training schools to make an allowance for time spent in any form of approved preliminary training, provided satisfactory evidence of such training is produced.

(*e*) Limit the questions in the final state examinations for all parts of the register to nursing treatment; neither systematic medicine, surgery, gynæcology or psychiatry to be included.

* * * * *

Death of Mr. Hartland Wright.

THE death of Mr. Hartland S. Wright, in his 90th year, removes one of the outstanding figures in the Medical Publishing world, of whom the city of Bristol may be justly proud. For many years he was the Chairman of Messrs. John Wright & Sons, Ltd., which was one of the first provincial publishing houses to undertake medical work.

The two outstanding enterprises which have been undertaken in the present generation by this firm have been the *Medical Annual* and the *British Journal of Surgery*. Both these publications have been of very great importance to the medical world. The first has presented an up-to-date résumé of medical progress year by year, which has been invaluable to busy practitioners, anxious to keep abreast of the times. The second has established an authoritative journal, representative of British surgery, including that of the Dominions and Colonies. Although for some years past Mr. Hartland Wright's health precluded his active participation in business, his influence and personality will long remain as the inspiring model of enterprise and efficiency which have become the watchwords of the firm.

Obituary

JOHN COURTENAY MacWATTERS, M.B.E., M.R.C.S., L.R.C.P.

We regret to announce the death of Dr. John Courtenay MacWatters at his home, The Golden Beeches, Almondsbury, on 1st February.

He was born in 1873, and educated at Bath Grammar School. Joining the Bristol Medical School in 1891, he qualified in 1896, and following this held several resident appointments at the Bristol Royal Infirmary.

He went into partnership with the late Dr. Irwin at Almondsbury, and, succeeding him, remained there in active practice until his death.

MacWatters was of the best type of general practitioner, enthusiastic and thorough in his work, successfully running, in the midst of a busy practice, a well-equipped bacteriological laboratory, which was not only invaluable in his own work, but in that of others; he contributed several papers on this subject to the medical press.

During the War he served as M.O. to the following establishments: Almondsbury Hospital; the Napier Miles Hospital at Kingsweston; the German Prisoners' Camp at Hallen; and the Remount Depôt at Shirehampton.

At one time MacWatters was a keen rider to hounds; this he had to forego owing to the exigencies of practice. His interests were many, from Alpine plants to lathe work, and his many hobbies rounded off a full and successful life.

Despite failing health, during his latter years he never spared himself, as painstaking and genial then as ever, and

ready to take the last ounce out of himself for his patient's sake. His loss is one that his relations and friends will feel deeply.

In 1898 he married Miss Bishop, a Sister at the Bristol Royal Infirmary, who predeceased him. He leaves a son and a daughter, to whom we offer our sincerest sympathy.

He had worked in Sir Almroth Wright's laboratory at St. Mary's Hospital, in the early days when it was beginning to attract attention from all over the world. Dr. John Freeman, of St. Mary's, writes of him as he knew him then: "The people working there had more than a laboratory friendship—for every evening they went off and dined together at about eight o'clock and then returned to work in the laboratory, work which usually stopped in the not so very small hours of the morning—any time from 3 to 7 a.m. MacWatters shared this very intimate life and hard work and contributed his full share to the general effort. At the same time he assimilated the views on immunity and resistance which have had such an influence on his subsequent medical career. Unfortunately we were able to see very little of MacWatters once he had settled at Almondsbury—for doctors suffer more than most people in being drowned in their work.

"But when he did reappear in London he was greeted with shouts of delight from his old comrades, whilst he demanded to be regaled with the latest laboratory news and stories, scientific, scandalous, or tall. He was always the cheeriest of companions and for the few short hours that he managed to be with us till his return to work he was the old comrade once again. We had a great affection for him."

Meetings of Societies

THE fourth meeting of the Session was held on Wednesday, 12th January, at 8.30 p.m., in the Physiological Lecture Theatre of the University.

Mr. C. A. Moore was in the chair, and seventy-eight members present.

Mr. A. Wilfrid Adams showed a case of lower left lobectomy for bronchiectasis.

Mr. A. L. d'Abreu gave a lecture entitled **"The Scope of Modern Surgery in Thoracic Disease,"** which was much appreciated.

The fifth meeting of the Session was held on Wednesday, 9th February, at 8.30 p.m. in the Physiological Lecture Theatre of the University.

Mr. C. A. Moore was in the chair and sixty-nine members were present.

Dr. J. Innes Noble read a paper on **"A Vaccine Treatment for Rheumatoid Arthritis,"** and Dr. G. L. Foss read a paper on **"Some Clinical Applications of the Male and Female Sex Hormones."**

The sixth meeting of the Session was held on Wednesday, 9th March, at 8.30 p.m. in the Physiological Lecture Theatre of the University.

Mr. C. A. Moore was in the chair and fifty-two members were present.

Dr. H. J. Orr-Ewing read a paper entitled **"Problems of the School Doctor."**

The Medical Library of the University of Bristol

WITH WHICH IS INCORPORATED

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the list in January, 1938.

April, 1938.

The Association of American Physicians (1) ..	1 volume.
Brompton Hospital (2)	1 volume.
Universidad de Buenos Aires (3)	2 volumes.
General Medical Council (4)	3 volumes.
University of Glasgow (5)	1 volume.
Professor E. W. Hey Groves (6)	3 volumes.
Michell Clarke Fund (7)	39 volumes.
Munro Smith Fund (8)	7 volumes.
Professor C. Bruce Perry (9)	2 volumes.
Professor A. Rendle Short (10)	1 volume.
Cyril H. Walker, Esq. (11)	1 volume.

Unbound periodicals have also been received from Professor E. W. Hey Groves, Dr. T. Milling, Professor C. Bruce Perry and Dr. J. Odery Symes.

THE ONE HUNDRED AND SIXTY-SECOND LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures have been attached have either been bought from the Library Fund or received through the *Journal*.

Arce, José	*Discursos del Decano de la Facultad de Ciencios Medicas, Universidad de Buenos Aires* .. .. (3)		1937
Barrington Ward, Sir L.	*The Abdominal Surgery of Children*	2nd Ed.	1937
Beaumont, G. E.	*Medicine*	3rd Ed. (7)	1937

Bickerton, T. H. .. .. *A Medical History of Liverpool* .. (11) 1936
Bigger, J. W. .. .. *Handbook of Hygiene* 1937
Bray, G. W. .. .. .. *Recent Advances in Allergy* 3rd Ed. (7) 1937
Brown, W. Langdon, and Hilton, R. *Physiological Principles in Treatment* .. .. 7th Ed. (7) 1936
Buchanan .. .. .. *Manual of Anatomy* .. .. 6th Ed. (7) 1937
Buckley, C. W. (Ed.) .. *Reports on Chronic Rheumatic Diseases*, No. 3 1937
Bunting, R. W. .. .. *Oral Hygiene and the Treatment of Parodontal Diseases* .. .. .. (7) 1936
Charlesworth, F. .. .. *Chiropody—Theory and Practice* .. (8) 1935
Clark, A. J. .. .. .. *Applied Pharmacology* .. 6th Ed. (7) 1937
Criteria for the Classification and Diagnosis of Heart Disease 3rd Ed. (7) 1932
Cruickshank, E. W. H. *Food and Physical Fitness* 1937
Cunningham .. .. .. *Textbook of Anatomy* .. .. 7th Ed. (7) 1937
Cushny, A. R. .. .. *Textbook of Pharmacology and Therapeutics* 11th Ed. (7) 1936
Derham, S. .. .. .. *Hydrologia Philosophica* 1685
Doxtater, L. W. .. .. *Full and Partial Dental Prosthesis* .. (7) 1936
Edwards, H. C. .. .. *Surgical Emergencies in Children* 1936
Fairbrother, R. W. .. *A Textbook of Medical Bacteriology* .. 1937
Fearon, R. .. .. .. *Nutritional Factors in Disease* .. .. (7) 1936
Garcia, C. L. .. .. *Las Deformidades de la Sexualidad Humana* (3) 1925
Greenfield, A. L. .. .. *X-ray Technic and Interpretation of Dental Roentgenograms* .. .. (7) 1936
Gask, G. E., and Ross, J. Paterson. *Surgery of the Sympathetic Nervous System* .. .. 2nd Ed. (7) 1937
Hale-White, W. .. .. *Materia Medica, Pharmacy, Pharmacology and Therapeutics* .. .. 23rd Ed. (7) 1937
Halliburton, W. D., and McDowall, R. J. S. *Handbook of Physiology* 35th Ed. (7) 1937
Harris, L. .. .. .. *Vitamins in Theory and Practice* 2nd Ed. (7) 1937
Henning, N. .. .. .. *Textbook of Gastroscopy.* (Trans. H. W. Rodgers) 1937
Hewer, C. L. .. .. *Recent Advances in Anæsthesia and Analgesia* 2nd Ed. (7) 1937
Hill, A. Bradford .. *Principles of Medical Statistics* .. (7) 1937
Hillary, W. .. .. .. *An Inquiry into the Contents and Medicinal Virtues of Lincomb Spaw Water, near Bath* 1742
Hindley-Smith, J. D. .. *Chronic Streptococcal Infection as a Disease* 1937
Hutchison, R., and Mottram, V. H. *Food and the Principles of Dietetics* 8th Ed. (7) 1936
Ingleson, H. .. .. .. *The Action of Water on Lead.* (Water Pollution Research Technical Papers, No. 4) 1934

Ling, T. M. .. .. .. *Recent Advances in Industrial Hygiene and Medicine* .. .. (8) 1937

Lõhr, W. .. .. .. *Wundheilung* .. .. (6) 1937

MacCullum, W. G. .. *A Textbook on Pathology* .. 6th Ed. (7) 1937

McKenny-Hughes, A. W. *The Bed-bug.* (British Museum (Natural History) Economic Series, No. 5) 1937

Manson, Sir P. .. .. *Tropical Diseases* .. 10th Ed. (7) 1935

Martindale, W. H. .. *The Extra-pharmacopoeia.* Vol. 1 21st Ed. (7) 1936

Meakins, J. C. .. .. *The Practice of Medicine* .. .. .. (7) 1937

Means, J. H. .. .. *The Thyroid and its Diseases* .. .. (7) 1937

Moncrieff, A. .. .. *The Management of the New-born Baby* (7) 1936

Muir, R. .. .. .. *Textbook of Pathology* .. .. 4th Ed. (7) 1936

Muir and Ritchie .. *Manual of Bacteriology* .. 10th Ed. (7) 1937

Oldfield, M. C. .. .. *Speech Training for Cases of Cleft Palate* .. 1938

Petersen, W. F. .. .. *The Patient and the Weather.* Vol. IV. Part 3. *Organic Disease—Surgical Problems* 1938

Poulton, E. P. .. .. *Diets and Recipes—and the Treatment of Diabetes and Obesity* .. .. .. (9) 1937

Prinz, H. .. .. .. *Dental Formulary* .. .. (7) 1936

Prinz, H. .. .. .. *Diseases of the Soft Structures of the Teeth and their Treatment* .. 2nd Ed. (7) 1937

Puech, Rezende .. .. *O problema da luxacão congenita do quadril no Brasil* .. .. (6) 1937

Purves-Stewart, Sir J. *The Diagnosis of Nervous Diseases* 8th Ed. (7) 1937

Queen Charlotte's Textbook of Obstetrics .. .. 4th Ed. (7) 1937

Radium, Production, General Properties, its Applications in Therapeutics (10) 1937

Romanis, W. H. C., and Mitchiner, P. H. *The Science and Practice of Surgery.* 2 vols. .. .. 6th Ed. (8) 1937

Rowlands, R. P., and Turner, P. *The Operations of Surgery.* 2 vols. 8th Ed. (8) 1936

Sauerbruch, F. .. .. *Advances in Modern Surgery.* (University of Glasgow, MacEwen Memorial Lecture, 1937.) .. .. (5) 1937

Sauerbruch, F., and O'Shaughnessy, L. *Thoracic Surgery* .. .. (8) 1937

Sheldon, W. .. .. .. *Diseases of Infancy and Childhood* .. (7) 1936

Sherman, H. C. .. .. *Chemistry of Food Nutrition* 5th Ed. (7) 1937

Simpson, W. .. .. *Hydrological Essayes* 1670

Skinner, E. W. .. .. *The Science of Dental Materials* .. (7) 1937

Smith, H. W. .. .. *The Physiology of the Kidney* 1937

Taylor, F. .. .. .. *Practice of Medicine* .. .. 15th Ed. (7) 1936

Thoma, K. H. .. .. *Oral Diagnosis and Treatment Planning* (7) 1937

Tweedy, E. H. .. .. *Practical Obstetrics* .. .. .. 7th Ed. 1937

Villafañe, I. Z. .. .. *La funcion del periostio* .. .. .. (6) 1937

Warwick and Tunstall	*First Aid to the Injured and Sick*	16th Ed.	1937
Whitby, L. E. H., and Britton, C. J. C.	*Disorders of the Blood*	2nd Ed. (7)	1937
Williams	*Obstetrics*	7th Ed. (7)	1936
Young, J.	*Textbook of Gynæcology*	4th Ed. (7)	1936

TRANSACTIONS, REPORTS, JOURNALS, ETC.

L'Année Médicale Pratique. Vol. XVI.	(9)	1937
Brompton Hospital Reports. Vol. VI.	(2)	1937
The Dentists' Register, 1938	(4)	1938
Medical and Dental Students Register, 1937	(4)	1938
The Medical Register, 1938	(4)	1938
Report on the 8th International Congress of Military Medicine and Pharmacy		1935
St. Thomas's Hospital Reports. 1st Series, Vol. LIX, and 2nd Series, Vol. II.		1937
Transactions of the Association of American Physicians. Vol. LII.	(1)	1937

NOTICE.

The following books have been missing from the Library for a long time, in spite of repeated requests for their return. Will members please be good enough to have a careful search made for these, in order that they may be returned without further delay ?

Bailey	*Physical Signs in Clinical Surgery.*
Berkeley	*Handbook of Midwifery.* Ed. 9. 1935.
Bourne	*Synopsis of Obstetrics.* Ed. 6.
Boyd	*Research on Low Potencies of Homœopathy.*
Byrne	*Studies in the Physiology of the Eye.*
Gadd	*Synopsis of the Pharmacopœia.*
Holmes	*Cancer and Scientific Research.*
Howard and Patry	*Mental Health.*
Hutton	*The Last of the Taboos.*
Knaus	*Periodic Fertility and Sterility in Women.*
Macalister	*Narrative of an Investigation concerning an Ancient Medicinal Remedy.*
Marshall	*New Theory of Cancer.*
Morris	*Maternity and Post-operative Exercises.*
Norman	*Essentials of Modern Medical Treatment.*
Sutherland	*Tuberculin Handbook.*
Walker	*Status of Enzymes and Hormones in Therapy.*
Whitnall	*The Study of Anatomy.* Ed. 3.

Publications Received

From Messrs. J. W. Arrowsmith Ltd.:

The Baths of Bath. By P. Rowland James, M.A. Price 5s.

From Bailliere, Tindall & Cox:

Occupational Therapy. An Addendum to the Handbook for Mental Nurses. Price 6d.

Modern Treatment in General Practice. Vol. IV. (1938). Edited by C. P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E., F.A.C.S., F.R.A.C.S. Price 10s. 6d.

From Edwards Brothers Inc., U.S.A.:

The Patient and the Weather. By William F. Petersen, M.D. Vol. IV. Part 3. *Organic Disease, Surgical Problems.* Price $10.

From Eyre and Spottiswoode Ltd.:

Myocarditis. The St. Cyres Memorial Lectures. Price 10s. 6d.

Practical Procedures. By Sir Humphrey Rolleston, Bart., G.C.V.O., K.C.B., M.D., F.R.C.P., and Alan A. Moncrieff, M.D., F.R.C.P. Price 10s. 6d.

From W. Heffer & Sons Ltd.:

Surface and Radiological Anatomy. By Arthur B. Appleton, M.A., M.D., William J. Hamilton, M.D., B.Ch., D.Sc., F.R.S.E., and Ivan C. C. Tchaperoff, M.A., M.D., B.Ch., D.M.R.E. Price 15s.

From William Heinemann Ltd.:

Neuro-ophthalmology. By R. Lindsay Rea, B.Sc., M.D., M.Ch., F.R.C.S. Price 42s.

From Messrs H. K. Lewis & Co. Ltd.:

Studies on the Physiology of the Eye. By J. Grandson Byrne, M.A., M.D., LL.D. Ed. 2. Price 40s.

Studies on the Physiology of the Middle Ear. By J. Grandson Byrne, M.A., M.D., LL.D. Price 18s.

Speech Training for Cases of Cleft Palate. By M. C. Oldfield, M.Ch. (Oxon), F.R.C.S. Price 4s. 6d.

Notes on Bacteriology and Clinical Pathology for Nurses. By Herbert Rogers, M.B., Ch.B. Price 1s.

A Textbook of X-ray Diagnosis. Edited by S. Cochrane Shanks, M.D., Peter Kerley, M.D., M.R.C.P., D.M.R.E., and E. W. Twining, M.R.C.S., L.R.C.P., D.M.R.E. By British authors. Vol. I. Price 50s. Vol. II. Price 42s.

From E. & S. LIVINGSTONE :

Food and Physical Fitness. By E. W. H. CRUICKSHANK, M.D., D.Sc., M.R.C.P., F.R.S.E. Price 5s.

From OXFORD UNIVERSITY PRESS :

Actinomycosis. By Zachary Cope, B.A., M.D., M.S. (Lond.), F.R.C.S. (Eng.). Price 15s.

Collected Papers on Tuberculosis. By Sir ROBERT W. PHILIP, M.A., M.D., LL.D., F.R.C.P., Hon. F.R.C.S.E., F.R.S.E. Price 21s.

The Physiology of the Kidney. HOMER W. SMITH, A.B., Sc.D., M.S. (Hon.). Price 15s.

A Survey of Chronic Rheumatic Diseases. Price 18s.

From JOHN WRIGHT & SONS LTD. :

Emergency Surgery. By HAMILTON BAILEY, F.R.C.S. (Eng.). Ed. 3. Price 50s.

British Journal of Surgery. Vol. XXV. No. 99 (January, 1938). Price 12s. 6d.

Local Medical Notes

The twenty-seventh Long Fox Memorial Lecture will be delivered on Tuesday, 15th November, 1938, by Professor A. M. Tyndall, D.Sc., F.R.S. Subject : " Air as a Conductor of Electricity."

EXAMINATION RESULTS.

University of Bristol.—Students of the University have recently passed the following examinations :—

M.B., Ch.B.—*Second Examination (Section I). Pass :* R. F. Brooks, J. H. Challenger, Doris E. Counsell, J. Deighton, Moragh J. Dickson, Mary D. Dixon, Eileen M. Herbert, Elisabeth Hodson, J. C. O. Iwenofu, A. G. H. Mitchinson, J. L. Pardoe, Margaret Savile, N. Slade, I. F. R. Sutherland, W. H. E. Turnbull, G. H. Valentine, Jean Wallace, Isabel M. M. Wilson.

University of Cambridge.

M.B., B.Chir.—*Third Examination (Part I). Pass :* C. H. Bartlett.

Conjoint Board.—L.R.C.P., M.R.C.S.—*Final Examination. Pass: In Medicine:* J. H. Bulleid,* P. W. J. Parkes. *In Surgery:* Myrtle M. Hutchins, Constance A. Mallett, Mabel L. Glenny. *In Midwifery:* Barbara Cunningham, Dorothy E. M. Dickinson.

L.D.S., R.C.S.—*First Professional Examination. Pass: In Dental Mechanics and Dental Metallurgy:* R. J. Gething.

* Qualified.

Colston Research Society.—The Thirty-fourth Annual Dinner of the Colston Research Society will be held in the Reception Room of the University of Bristol on Wednesday, 18th May next, at 7 o'clock for 7.30 p.m., under the Presidency of Mr. R. J. Sinclair. The guests of the evening are to be Professor D. M. S. Watson, F.R.S., Professor of Zoology and Comparative Anatomy, University of London, and Mr. Bernard Darwin, C.B.E.

For further particulars apply to the Hon. Secretary of the Colston Research Society, 12 Small Street, Bristol 1.

Colston Medical Research Fellowships.—The Council of the Colston Research Society, Bristol, offers one or more Fellowships for 1938–39 of not less than £100 per annum for Research work primarily in Clinical subjects, though other medical subjects are not excluded. The work must be carried out in the University of Bristol or in any of the Clinical Institutions associated with the University.

Awards will be made in June or July, 1938. Applications should be forwarded forthwith to the Hon. Secretary of the Colston Research Society, 12 Small Street, Bristol 1.

Bristol Medico-Chirurgical Society.

President.

C. A. MOORE, M.B., M.S. (Lond.), F.R.C.S.

President-Elect.

L. A. MOORE, M.B., Ch.B. Brist.

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Ex-Officio
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- (Vacant), (Hon. Librarian).

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Medical Practitioners wishing to join the Society are requested to communicate with the Hon. Secretary, Mr. R. V. COOKE, Failand Lodge, Guthrie Road, Clifton. The Annual Subscription is £1 1s., payable to Hon. Treasurer.

Extracts from Journal By-laws.

4.—The *Journal* shall be delivered free to Subscribers and also to Members of the Society whose subscriptions are not in arrear.

6.—The Annual Subscription to the *Journal* is 10/6, payable to Hon. Treasurer.

Communications intended for insertion in the *Journal* should be sent to the Editor, Dr. J. A. NIXON, 7 Lansdown Place, Clifton, Bristol.

Books for Review and Exchange Journals should be sent to the Assistant-Editor, *Bristol Medico-Chirurgical Journal*, Medical Library, The University, Bristol. Reviews should be returned with the books to the Assistant Editor at 65 Pembroke Road, Clifton, Bristol 8.

Communications referring to the delivery of the *Journal* should be sent to the Editorial Secretary, A. L. Flemming, 48 Pembroke Road, Clifton, Bristol.

Cases for Binding Vols. I—LIV are now ready, and may be obtained price 1/9 each (postage extra), upon application to J. W. ARROWSMITH LTD., Quay Street, Bristol; or the *Journal* will be bound, including Case, for 7/- per volume. The inclusive index for Volumes I—L may be obtained, price 3/- (postage extra).

Bristol Medico-Chirurgical Society.

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1877—78. AUGUSTIN PRICHARD, M.D. Berlin.
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